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COMPETITIONS.

WE wind up the year's series of competitions with one concerning the advertisements in the *C. & D. DIARY*, 1895, which all subscribers will receive in the course of next week.

A coupon is enclosed in every copy of the *DIARY* supplied to subscribers or sold to non-subscribers. On this coupon a series of questions about the *DIARY* advertisements is printed, with spaces for replies. We ask subscribers to fill in these and return the coupons to us at their earliest convenience, or, if they do not care to take part in the competition themselves, we request that they will give the opportunity to an apprentice, assistant, relative, or friend in the business, so that we may get a good expression of opinion.

TEN GUINEAS

will be distributed in awards, based on the principle of estimating from the total. That is to say, the competitor whose answers correspond most nearly with the general response will be given the first prize; but we reserve the right of dividing the ten guineas as we think fit among home, foreign, and colonial competitors, or in any other way that may seem desirable. December 31, 1894, is the latest date for sending in the home coupons. Special dates for sending in foreign and colonial coupons are printed on the coupons themselves.

"SCIENTIFIC MYSTERIES."

CHEMISTS who propose to stock this attractive 1s. book this season should order at once. We have only a few show-cards left and can only supply these as long as they last, one with each dozen books. Our price for "Scientific Mysteries" is 8s. 6d. per dozen. They can be ordered direct from us or from any wholesale house.

Summary.

THE Post-office is to allow the redirection of postcards, circulars, &c., without extra postage (p. 767).

THE Pharmaceutical Society's new hall and laboratories in Edinburgh have been opened this week (p. 784).

AMONGST the new companies registered since our last issue are several who are to trade as chemists (p. 790).

A NEW medical and pharmacy law has come into force in the Transvaal, which requires the payment of heavy annual fees (p. 769).

THE Local Government Board has written an important letter regarding the dispensership at the Union Infirmary, Highgate (p. 766).

WE publish the results of our Chemists' Winter Window Competition on pp. 774-780, with some remarks on window-displays on p. 782.

THE alkali-industry is in a bad way, if we may judge from the fact that the United Alkali Company is closing some of its works (pp. 766-777).

MR. EDMUND WHITE has read a useful and practical paper to the Chemists' Assistants' Association on the manufacture and use of surgical dressings (p. 771).

ANOTHER subscriber, who feels grateful for what the *C. & D.* has done for him, sends a batch of practical recipes for the benefit of the trade (p. 795).

THE sixth, and for the present the last, of our series of Pharmacy Fables appears on p. 785. The waste of energy by certain pharmacists is the topic treated.

THE members of the Institute of Chemistry have again attempted to formulate a code of ethics for professional chemists, apparently without success (p. 772).

THE executive of the North British Branch met on Thursday, and nominated Professor Geddes, of Dundee, and Dr. John Gibson, of Edinburgh, amongst the examiners (p. 788).

AT the meeting of the General Medical Council this week Sir Richard Quain reported that twenty-six colonial bodies have replied to the communication regarding the Imperial British Pharmacopœia (p. 767).

PHARMACEUTICAL antiquities was the subject brought before the Liverpool Association last week. Mr. Wardleworth unearthed many quaint Babylonian, Egyptian, and other ancient relics (p. 771).

FURTHER progress has been made with the new French Pharmacy Bill in the Senate, and such is the enthusiasm in France regarding diphtheria serum that a senator has proposed (but failed) to add a clause about it to the Pharmacy Bill (p. 768).

SPEAKING at Glasgow to a large meeting of chemists Mr. Carteighe stated on Wednesday that the Pharmaceutical Society will not undertake any Bill to put down limited company pharmacy unless at the same time the widows' clause of the Pharmacy Act is abolished. He gave his reasons for this (p. 788).

THE extraordinary scarceness of asafoetida, which is largely re-exported from this country to the United States, has caused complaints on the part of some of the merchants interested in this business with regard to the alleged want of care of the Official Drug Examiners' office in New York in the matter of admittance of the drug. We comment upon this on p. 783.

ALTHOUGH trade in the drug and chemical markets has been exceedingly dull this week, we record several alterations of price of considerable interest. The chief of these is a reduction of 6d. per lb. in the quotation of bismuth metal, which has been followed by a corresponding decline in all bismuth preparations. Refined camphor has also been reduced in price, while cocaine hydrochlor. has been raised 1s. per oz. There is something like a corner in menthol, but otherwise drugs show little activity (pp. 790-4).

English News.

The Editor is obliged to correspondents who send local newspapers containing items of interest to the trade. He will be further obliged if such paragraphs be marked in all cases.

The Depression in the Alkali-trade.

In pursuance of notices posted a week ago, the bleach and caustic departments of the United Alkali Company's factories in Runcorn and elsewhere were closed last week for an indefinite period, which, it is announced, will certainly extend into the New Year. Several thousands of workmen are thus thrown out of employment. In addition to the hands engaged in the sections indicated, many others in the chemical-works will have to cease work.

Testimonial to a Sheffield Chemist.

A dinner was given on the evening of November 22 by Mr. J. T. Dobb, of the firm of J. T. Dobb & Sons, chemists, Westbar, Sheffield, to a number of his friends and supporters in St. Philip's ward, from the representation of which in the City Council he has just retired. Mr. Dobb occupied the chair, and was supported by a large number of prominent citizens. In the course of the proceedings the burgesses of the ward took the opportunity to present to Mr. Dobb an illuminated address expressing their appreciation of his services as their representative for the past eighteen years. Alderman Franklin made the presentation on behalf of the St. Philip's Ward Conservative Association. Mr. Dobb, in responding, remarked that he conceived it to be the duty of every citizen to take a share in the government of his city, and it was exceedingly pleasant to know that his efforts had been appreciated.

Brighton Chemists are Gay.

The members of the Senior and Junior Brighton Associations of Pharmacy and their friends assembled at the Hôtel Métropole on Wednesday of last week for the first of a series of monthly musical evenings held during the winter. The chair was occupied by Mr. W. H. Gibson, F.C.S., President of the Senior Association, and there was an excellent attendance. The proceedings were under the management of Mr. A. E. Coleman, and among those who contributed to the entertainment were Professor André, who gave a clever sleight-of-hand performance, and Mr. Charles Collette, from the Empire Theatre, who was highly successful in a couple of his popular songs. Dr. Whittle also played a solo on the ocarina. Mr. Padwick was the only pharmacist who contributed to the evening's enjoyment. Mr. W. J. Fleet, conductor of the Métropole Orchestra, gave an admirable rendering of "Ye Banks and Braes" as a cornet solo, and Mr. Watts contributed a solo. The vocalists were:—Mr. Price, "Nita Gitana"; W. Mitchell, "The Star of Bethlehem"; Mr. Padwick, "Friar of Orders Grey"; Mr. Eldridge, "Moods and Tenses"; Mr. Langley, "The White Snail"; Mr. R. Smith, "I can't change it"; Mr. Walter Long, "Phyllis is my only joy"; Mr. H. E. Hedgcock; Messrs. Harvey and Waring, of the Nottingham Glee Club; Mr. Arthur Collins, "Tableaux Vivants"; and Mr. E. F. Leggett, "The Miller." Mr. Ernest Hedgcock acted as accompanist. During the evening the Chairman drew the attention of the members to the claims of the Pharmaceutical Benevolent Fund. Last year they subscribed 14*l.* to the fund, and for that they obtained 230 votes, which enabled them to secure the election of a poor woman in Brighton as an annuitant.

Poisoned by Salts of Lemon.

Last Friday a widow named Westwood mixed a pennyworth of salts of lemon in a cup of hot water for the purpose of removing ironmould from some linen. During her temporary absence from the room her son, 13 months old, got hold of the cup, drank its contents, and died the same night.

Veterinary Prosecution.

At Matlock Petty Sessions on November 21, Isaac Altren Bartlett, veterinary surgeon, was summoned for falsely representing himself as a member of the Royal College of

Veterinary Surgeons. The charge arose out of a cruelty case tried in September, against a man named Hatfield, and the certificate which the defendant had signed as an M.R.C.V.S. was produced. Mr. Middleton, for the prosecution, said the defendant was not even on the list of veterinary surgeons. The defendant produced an old list of 1883 on which his name appeared, and he admitted that in the hurry he put the letter "M" instead of "R" after his name. He was registered, but was not a member. The Bench fined him 10*s.* and costs, being lenient with him on account of the discrepancies in the two lists.

The Half-holiday.

The chemists and other tradesmen of Wadhurst (Sussex) have agreed to suspend business at 5 P.M. each Wednesday, at 7 P.M. on Mondays, Tuesdays, and Thursdays, at 8 P.M. on Fridays, and at 9.30 P.M. on Saturdays for the winter months.

Withdrawing from a Prosecution.

At the Southampton Borough Police Court on November 24, Cecil Montague, a medical student, giving an address at Eastbourne, was charged with making false representations to Mr. William Bates, chemist, of 50 Oxford Street, Southampton. Mr. Hallett, who appeared for Mr. Bates, said the prisoner had given a cheque to Mr. Bates's assistant for 7*l.*, which was dishonoured on being presented. As far back as last May a warrant was issued for the prisoner's arrest, but it had only been executed on the previous day. The prisoner had in the interval been in considerable trouble, and with the Court's permission Mr. Bates would like to withdraw from the prosecution. A friend of the prisoner's had sent to the Chief Constable a sum of 8*l.* The only reason Mr. Bates had in wishing to withdraw from the case was that he believed the prisoner to have been very unfortunate. The Magistrates permitted the prisoner to be discharged on the costs of the prosecution being paid.

Inquest on a Chemist.

An inquest was held on Saturday on the body of Henry Vaughan, 68, retired chemist, Harrington Street, Hampstead Road. Mr. Vaughan had been in ill-health, and the servant, who had been out on Wednesday evening last week, was unable to gain access to the house on her return. Mr. Knight, chemist, Euston Road, a friend, arriving to pay him a visit, an entrance was, with the aid of a police-constable, effected through a window. Vaughan was found lying, fully dressed, face downwards, on the floor of his bedroom, quite dead. Dr. New deposed that deceased was a fellow-student of his at University College, and had been dispenser twenty-eight years at the Hospital for Consumption, Fitzroy Square and Hampstead, from which position he retired with a pension. He suffered from disease of the heart and lungs, and the immediate cause of death was syncope. Verdict accordingly.

Carbolic-acid Poisonings.

At Birmingham, on Saturday, an inquest was held concerning the death of William Allcock, aged 14, who had committed suicide by taking carbolic acid. Deceased was found unconscious in the warehouse of a firm of wholesale saddlers, where he was employed, and died two hours after admission to the hospital. Near him was a jug containing carbolic acid. The boy was generally of a cheerful disposition, and was not under censure. The jury returned a verdict that deceased committed suicide whilst suffering from emotional insanity, and expressed the opinion that carbolic acid should be entered upon the list of poisons restricted in sale, as at present it could be obtained much too easily.

A domestic servant, named Emma Robins, aged 27, died at Blowick, near Southport, from the effects of drinking carbolic acid, on Monday last.

The Holborn Board of Guardians and their Dispensers.

At their meeting last week, the Holborn Board of Guardians received a letter from the Local Government Board, in which they were asked to reconsider their decision calling upon Mr. Pattinson, dispenser at the Highgate Infirmary, to resign. The Local Government Board pointed

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A dinner was given on the evening of November 22 by Mr. J. T. Dobb, of the firm of J. T. Dobb & Sons, chemists, Westbar, Sheffield, to a number of his friends and supporters in St. Philip's ward, from the representation of which in the City Council he has just retired. Mr. Dobb occupied the chair, and was supported by a large number of prominent citizens. In the course of the proceedings the burgesses of the ward took the opportunity to present to Mr. Dobb an illuminated address expressing their appreciation of his services as their representative for the past eighteen years. Alderman Franklin made the presentation on behalf of the St. Philip's Ward Conservative Association. Mr. Dobb, in responding, remarked that he conceived it to be the duty of every citizen to take a share in the government of his city, and it was exceedingly pleasant to know that his efforts had been appreciated.

Brighton Chemists are Gay.

The members of the Senior and Junior Brighton Associations of Pharmacy and their friends assembled at the Hôtel Métropole on Wednesday of last week for the first of a series of monthly musical evenings held during the winter. The chair was occupied by Mr. W. H. Gibson, F.C.S., President of the Senior Association, and there was an excellent attendance. The proceedings were under the management of Mr. A. E. Coleman, and among those who contributed to the entertainment were Professor André, who gave a clever sleight-of-hand performance, and Mr. Charles Collette, from the Empire Theatre, who was highly successful in a couple of his popular songs. Dr. Whittle also played a solo on the ocarina. Mr. Padwick was the only pharmacist who contributed to the evening's enjoyment. Mr. W. J. Fleet, conductor of the Métropole Orchestra, gave an admirable rendering of "Ye Banks and Braes" as a cornet solo, and Mr. Watts contributed a solo. The vocalists were:—Mr. Price, "Nita Gitana"; W. Mitchell, "The Star of Bethlehem"; Mr. Padwick, "Friar of Orders Grey"; Mr. Eldridge, "Moods and Tenses"; Mr. Langley "The White Squall"; Mr. R. Smith "I can't change it"; Mr. Walter Long, "Phyllis is my only joy"; Mr. H. E. Hedgecock; Messrs. Harvey and Waring, of the Nottingham Glee Club; Mr. Arthur Collins, "Tableaux Vivants"; and Mr. E. F. Leggett, "The Miller." Mr. Ernest Hedgecock acted as accompanist. During the evening the Chairman drew the attention of the members to the claims of the Pharmaceutical Benevolent Fund. Last year they subscribed 14% to the fund, and for that they obtained 230 votes, which enabled them to secure the election of a poor woman in Brighton as an annuitant.

Poisoned by Salts of Lemon.

Last Friday a widow named Westwood mixed a pennyworth of salts of lemon in a cup of hot water for the purpose of removing ironmould from some linen. During her temporary absence from the room her son, 13 months old, got hold of the cup, drank its contents, and died the same night.

Veterinary Prosecution.

At Matlock Petty Sessions on November 21, Isaac Altren Bartlett, veterinary surgeon, was summoned for falsely representing himself as a member of the Royal College of

Veterinary Surgeons. The charge arose out of a cruelty case tried in September, against a man named Hatfield, and the certificate which the defendant had signed as an M.R.C.V.S. was produced. Mr. Middleton, for the prosecution, said the defendant was not even on the list of veterinary surgeons. The defendant produced an old list of 1883 on which his name appeared, and he admitted that in the hurry he put the letter "M" instead of "R" after his name. He was registered, but was not a member. The Bench fined him 10s. and costs, being lenient with him on account of the discrepancies in the two lists.

The Half-holiday.

The chemists and other tradesmen of Wadhurst (Sussex) have agreed to suspend business at 5 P.M. each Wednesday, at 7 P.M. on Mondays, Tuesdays, and Thursdays, at 8 P.M. on Fridays, and at 9 30 P.M. on Saturdays for the winter months.

Withdrawing from a Prosecution.

At the Southampton Borough Police Court on November 24, Cecil Montague, a medical student, giving an address at Eastbourne, was charged with making false representations to Mr. William Bates, chemist, of 50 Oxford Street, Southampton. Mr. Hallett, who appeared for Mr. Bates, said the prisoner had given a cheque to Mr. Bates's assistant for 7/., which was dishonoured on being presented. As far back as last May a warrant was issued for the prisoner's arrest, but it had only been executed on the previous day. The prisoner had in the interval been in considerable trouble, and with the Court's permission Mr. Bates would like to withdraw from the prosecution. A friend of the prisoner's had sent to the Chief Constable a sum of 8/. The only reason Mr. Bates had in wishing to withdraw from the case was that he believed the prisoner to have been very unfortunate. The Magistrates permitted the prisoner to be discharged on the costs of the prosecution being paid.

Inquest on a Chemist.

An inquest was held on Saturday on the body of Henry Vaughan, 68, retired chemist, Harrington Street, Hampstead Road. Mr. Vaughan had been in ill-health, and the servant, who had been out on Wednesday evening last week, was unable to gain access to the house on her return. Mr. Knight, chemist, Euston Road, a friend, arriving to pay him a visit, an entrance was, with the aid of a police-constable, effected through a window. Vaughan was found lying, fully dressed, face downwards, on the floor of his bedroom, quite dead. Dr. New deposed that deceased was a fellow-student of his at University College, and had been dispenser twenty-eight years at the Hospital for Consumption, Fitzroy Square and Hampstead, from which position he retired with a pension. He suffered from disease of the heart and lungs, and the immediate cause of death was syncope. Verdict accordingly.

Carbolic-acid Poisonings.

At Birmingham, on Saturday, an inquest was held concerning the death of William Allcock, aged 14, who had committed suicide by taking carbolic acid. Deceased was found unconscious in the warehouse of a firm of wholesale saddlers, where he was employed, and died two hours after admission to the hospital. Near him was a jug containing carbolic acid. The boy was generally of a cheerful disposition, and was not under censure. The jury returned a verdict that deceased committed suicide whilst suffering from emotional insanity, and expressed the opinion that carbolic acid should be entered upon the list of poisons restricted in sale, as at present it could be obtained much too easily.

A domestic servant, named Emma Robins, aged 27, died at Blowick, near Southport, from the effects of drinking carbolic acid, on Monday last.

The Holborn Board of Guardians and their Dispensers.

At their meeting last week, the Holborn Board of Guardians received a letter from the Local Government Board, in which they were asked to reconsider their decision calling upon Mr. Pattinson, dispenser at the Highgate Infirmary, to resign. The Local Government Board pointed

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POST CARD COMPETITION.

AUGUST.

WE have already stated that our request for a good subject for a post card competition did not bring us a very satisfactory response. Many good suggestions of topics for articles were made, but it was not practicable to adapt these to the exigencies of a post card competition. A large number of the competitions proposed, and by far the most useful, were subjects which have already been exploited. We cannot give our reasons for rejecting many of the proposals submitted, which, we think, would lead to nothing useful or interesting or amusing. The one we finally decide to adopt is sent in by Mr. F. H. Glew, 156 Clapham Road, S.W. (to whom the guinea will be sent), and is expressed as follows:—

The best description (with or without drawings) of some advantageous tool, appliance, or fitting, for the dispensing counter. Preference given to something not generally known, but articles not to be disqualified if not absolutely new or original.

All subscribers, their assistants or families may compete, and answers (must be on post cards) will be received up to August 31, 1894. We may add that we shall interpret the terms of the offer freely. Almost any wrinkle which facilitates work at the dispensing counter will be eligible.

Summary.

THE affairs of four chemists are reported from various bankruptcy courts (p. 219).

MORE evidence of the failure of the Fertilizers and Feeding-Staffs Act is furnished by reports on p. 170.

THE Committee appointed to inquire into the management of Chelsea Hospital for Women has presented its report, and the whole medical staff has resigned in consequence (p. 169).

THE Home Office is anxious to direct the attention of chemists and druggists to the danger of supplying chemicals which may be used for the manufacture of explosives (p. 170).

TRADE continues dull, and the sales on Thursday were quiet, as is usual at the beginning of August. Quinine has advanced to 1s., and Chinese products, notably camphor, are still tending higher.

CORRESPONDENTS write on the purity of phenacetin, on a proposal to increase the strength of tincture of iodine, on degrees for pharmacists, and on cures for whooping-cough and hiccough (p. 233).

A CHEMIST's shop-boy threw a pail of water into the road and frightened a passing horse. The horse fell and injured himself. The owner sued the chemist for the damage, but failed to recover (p. 169).

THE deaths from carbolic acid are on an ascending scale. We report eight new cases in this country. The fact that it is not scheduled a poison is severely commented on in more than one instance (p. 171).

AT an inquest touching the death of an aged woman from liniment-poisoning at Manchester, the Coroner advocated the compulsory use of a distinctive poison-bottle, with the object of preventing accidental poisoning (p. 170).

THE question of warranty under the Sale of Food and Drugs Act has again come before the High Court, which holds that a printed label on a vinegar-cask in conjunction with an invoice constitutes a warranty within the meaning of the Act (p. 227).

THE Food Adulteration Committee of the House of Commons has held several more sittings since we last reported their proceedings, and on page 261 we give briefly the substance of the evidence submitted, which relates principally to milk, butter, and cheese.

THE French Government Tobacco Monopoly claims to have devised a new process for the production of nicotine of more uniform quality than has hitherto been obtainable, and is expecting a large trade in it for horticultural purposes and for sheep-dipping (p. 171).

OVER a thousand excursionists went from Liverpool to Matlock last Saturday at the invitation of Messrs. Evans, Sons & Co. to celebrate the silver wedding of one partner, and the recent marriage of another. Nearly half of the party were in the direct employment of the firm (p. 168).

WE give an illustrated report of the pharmaceutical exhibits shown in connection with the meeting of the British Medical Association this week at Bristol. In this are described the multifarious specialities which are now being brought before the medical profession with such remarkable energy by a number of enterprising pharmaceutical firms (p. 220).

A LARGE part of this issue is occupied with our report of the proceedings of the British Pharmaceutical Conference at Oxford, which has been in session through the week under the presidency of Mr. N. H. Martin, of Newcastle. It will be seen that a very goodly array of papers was presented, all of them of a pharmaceutical character and many of considerable value. Our report extends over 42 pages, and is interspersed with portraits and views of the interesting spots in and about Oxford, associated with the visit of the Conference. On pages 214 to 219 will be found comments on the President's address and on the papers and discussions generally. Mr. Martin has been re-elected to the presidential chair, and Bournemouth is fixed on for the place of meeting next year.

English News.

The Editor is obliged to correspondents who send local newspapers containing items of interest to the trade. He will be further obliged if such paragraphs be marked in all cases.

Betting in a Chemist's Shop.

At Plymouth Quarter Sessions last week, Geo. Alfred Billing, of 128 Exeter Street, Plymouth, described as a chemist, but not on the register, was charged with keeping a betting-house, and also with betting with persons resorting thereto. Evidence was given of betting transactions carried on at the defendant's shop with various people. Hubert Symons, a commercial traveller, also admitted having made bets with the defendant on his premises. The jury returned a verdict of guilty on both charges and the Recorder inflicted a fine of 10*l.* and costs on each count.

What does Mr. Fernando Owe?

In the City of London Court on July 25, before Mr. Commissioner Kerr, in the case of *Farina v. Fernando*, the plaintiff, Mr. J. A. Farina, of Coleman Street, E.C., applied for the defendant's committal for the non-payment of the sum of 1*l.* due. Mr. Digby, the plaintiff's solicitor, said the defendant carried on a good business. There were two instalments of the debt due. He could not issue a summons for a single instalment because a second was due. Mr. Commissioner Kerr said the law of this country did not allow a man to do as he liked. Why had the defendant not paid? The defendant said he could not pay the amount. He had several other orders against him and only the other day the learned Judge said he would commit him if he did not keep up the instalments ordered. He really could not pay any more. He owed quite 200*l.*; though he could not say for certain. Mr. Commissioner Kerr said he would adjourn the case for a list of the defendant's debts to be filed in the Court. He would then send the case to the High Court of Bankruptcy.

A Threatening Letter.

At the Lambeth Police Court, on Thursday last week, Charles Henry Snell, chemist and druggist, of St. John's Road, Hoxton, was charged, on remand, with using threats towards the Rev. W. S. Cadman, vicar of St. Andrew's, Peckham. (We reported the case in our last issue.) Mr. Sydney, solicitor, now appeared for the defence, and said his client, through him, expressed contrition for what had passed, and promised not to annoy the rev. gentleman again. Mr. Biron said he must take care that the prosecutor was not subjected to this sort of thing. He ordered the prisoner to find a surety in 25*l.* for his good behaviour for six months, or go to gaol for a month.

Poisoning by Chloroform.

An inquest was held on July 24, at Putney, by Mr. H. Braxton Hicks, concerning the death of Septimus Collins Burton, a chemist's assistant in the employ of Mr. Farmer, 106 High Street, Putney, and who was found dead in bed. Evidence showed that deceased, who suffered from sleeplessness, was in the habit of using chloroform. On the morning of July 21, as Burton did not come down, the manager, Mr. G. Allthorp, went up to his room and found him dead in bed. A handkerchief was over his mouth, and an empty bottle labelled "Chloroform" on the bed. Medical evidence showed death to be due to syncope produced by excessive inhalation of chloroform. The jury returned a verdict of death from misadventure, and added a rider, that the attention of the Privy Council be drawn to the large quantities in which chloroform is sold by wholesale and retail chemists. The Coroner said he would have the matter fully inquired into.

Trade Excursions.

On Saturday, July 28, Messrs. Evans, Sons & Co., wholesale druggists, Liverpool, gave their employes an excursion to Matlock Bath. To each employe was presented a double ticket, so that over 1,000 ladies and gentlemen took part in the day's outing, business being entirely suspended for

the day at the firm's offices and warehouses. In promoting an excursion on so large a scale, two happy events in the family history of members of the firm were celebrated—viz., the silver wedding of Mr. Edward Evans, jun., and the recent marriage of his youngest brother, Mr. Alfred Bickerton Evans, of the Montreal branch. The company travelled by two special trains from the Liverpool Central Station, Matlock Bath being reached shortly after 11 o'clock. Among those present were Mr. and Mrs. J. J. Evans, Mr. and Mrs. Edward Evans, jun., Mr. and Mrs. W. P. Evans, Mr. and Mrs. Alfred Bickerton Evans, Mr. F. H. Lescher (Evans, Lescher & Webb, London), Mrs. Lescher, Mr. Edward Lescher, Mr. Arthur E. Evans, Mr. E. N. Evans, Miss Evans, Mrs. Ferguson, Miss Gwendoline Evans, Miss Schmidt, Miss Gertrude Evans, Miss Rita Evans, Miss Noeline Evans, Miss Whieldon, Mr. and Mrs. Septimus Castle, Mr. A. H. Dickson, Dr. and Miss Flinn, &c. The pavilion and pleasure-grounds at Matlock Bath had been secured for the day, and ample arrangements were made for the comfort and enjoyment of everybody. Luncheon and tea, with light refreshment in the interval, were served in the pavilion, Mr. Holmes, of the Metropole, Church Street, Liverpool, being specially engaged for the catering, which for so large a company was a matter requiring much skill and forethought. Mr. Holmes personally directed the numerous staff of waiters and waitresses, and the work of his department gave entire satisfaction. The Gleam of Sunshine Silver Prize Band, of Tranmere, were present, and performed selections during the day with much appreciation. A short concert was also given in the pavilion. Much interest was shown in the athletic sports, there being numerous entries for the various events. The tug-of-war—Warehousemen *v.* Laboratory—was keenly contested, the final victors being the warehouse team. In the course of the afternoon a number of groups, in commemoration of the day, were photographed by Messrs. Medrington, of Bold Street. At the luncheon, which was presided over by Mr. J. J. Evans, a marriage-gift, consisting of a handsome silver tea and coffee service, was presented by Mr. Conroy, on behalf of the employes of the firm, to Mr. and Mrs. Alfred B. Evans. Mr. Conroy explained that the gift had been subscribed to by every employe of the firm, who wished long life and happiness to the newly-married couple. Mr. A. Evans, in returning thanks, said his wife and himself would look back upon that day as the most enjoyable of their honeymoon. They very much appreciated the gifts they had received from employes on both sides of the Atlantic. The Chairman, in extending a hearty welcome to the company, said himself and his brothers had always endeavoured to foster in their business a feeling of *esprit de corps*, and they believed that such a gathering would still further draw together employers and employes. That was also particularly the wish of his father, who would have liked to have been with them that day. As showing the continuity of service in the firm, he said they had present one gentleman who was with the firm fifty-one years ago. At that time it consisted of nine people—three partners and six servants. They had advanced since then, and they were now in the front rank of their particular line of business. In connection with that success he wished to acknowledge the hearty co-operation of all their employes. Mr. Edward Evans, jun., in following up his brother's remarks on the success of the firm, said they had inherited a splendid reputation and a great opportunity from their esteemed father. That opportunity they had not neglected, and it was a matter of pride to be able to say that in the business in which they were engaged they were second to none in the world. Mr. Lescher thanked the hosts, on behalf of the visitors, for their magnificent hospitality. The firm had had a glorious past, and he believed would have a glorious future. Mr. W. P. Evans proposed a vote of thanks to the committee and stewards, mentioning specially Mr. William Alfred Jones, the hon. secretary. Before leaving the grounds the prizes won at the sports were presented by Mrs. Alfred B. Evans, who was cordially thanked by Mr. Conroy. The last contingent reached Liverpool about 10 o'clock. The arrangements were ably carried out by a committee, consisting of Messrs. M. Conroy, C. F. Malvern, William Wellings, and William Alfred Jones, the latter of whom made an indefatigable hon. secretary. The sports were conducted by Messrs. J. Hunter (starter), H. Macmillan (handicapper), and J. Shacklady and T. H. Wardleworth (stewards).

The Lamson Paragon Supply Company (Limited), Canning Town, E., took their employés, on July 14, to Southend. Dinner was served at the Criterion Hotel, the railway ticket and the dinner being provided by the firm. Over 200 sat down, and as the afternoon turned out wet a variety entertainment was provided, and dancing indulged in.

The employés of Messrs. F. C. Hill & Co.'s chemical-works, Creek Street, Deptford, had their annual outing last week to Leaves Green, near Bromley, Kent, which was reached by way of Lewisham, Catford, Bromley, Hayes, and Keston. High tea was partaken of, and a very pleasant afternoon was spent.

Reporting a Dentists' Association.

Before Mr. Registrar Wild, in the City of London Court, on Friday, Mr. G. B. Richards, shorthand-writer, sought to recover from the defendant, Mr. Goodman, dentist, of Ludgate Hill, the sum of 8*l.* 18*s.*, being the price of a transcript of shorthand notes taken at a meeting of the British Dental Practitioners' Association by the defendant's orders. Mr. Tattershall represented the plaintiff, and the defendant appeared in person. The plaintiff's case was that in May last year he called on the defendant in consequence of messages received from him, and was told by the defendant to take a shorthand note of all dental matters that came before the Council of the British Dental Practitioners' Association. The plaintiff, not knowing when the sitting of the Council was to commence, was referred by the defendant to a Mr. Slater, of Basinghall Street, the Secretary of the Association, from whom the plaintiff received the required information. He attended the meetings of the Council, and had taken notes of all dental matters. Those he had transcribed and delivered to the defendant. In cross-examination, he said that two of his sons had been in the service of the defendant, who, he believed, had been a good master to them, but he did not know that his wife had done the defendant's washing. The defendant said he merely put these questions to show that he had been a benefactor to the plaintiff's family, and that the claim now made was a trick. The Registrar said that the sole question was whether or not the plaintiff had been employed by the defendant to take the shorthand notes the price of which was now being sued for. The Defendant: I never employed the plaintiff. The Registrar said the evidence before him was that the plaintiff had gone to the defendant's place and had been told to take the notes. The defendant might be the most charitable person in the world, but that had nothing to do with this case. The defendant, continuing, said he had never instructed the plaintiff to do what he had done. When the plaintiff called in May he sent him to Mr. Slater to help the plaintiff to get some work. He was much surprised on receiving from the plaintiff a transcript of notes taken at the meeting of the British Dental Practitioners' Association about a fortnight after the meeting had been held. In cross-examination the defendant said he was not a member of the Council of the British Dental Practitioners' Association, and had nothing to do with the work of the Council.

Mr. John Slater, of Basinghall Street, Secretary of the British Dental Practitioners' Association, was called for the defendant, and he said that the plaintiff had called on him in May mentioning the defendant's name, and had asked whether he (the witness) could do anything for him at the next meeting of the Council of the Association, at which the question of advertising dentists was to be discussed. He had asked the plaintiff to take a report for the British Dental Practitioners' Association. The learned Registrar, after hearing further evidence, said that he could not, in the face of the evidence before him, find there had been any employment by the defendant for the work to be done. The plaintiff had failed to make out his case, and he must find in favour of the defendant.

Suicide of a Dentist at Sheffield.

The circumstances attending the death of Harridan Palmer, a dentist, who had lived in West Street, Sheffield, formed the subject of a coroner's inquest on Monday. A week ago the deceased had a fall in his workshop, and sustained internal injuries. On Friday, in consequence of the ill-effects of these, he called in a medical man, and was informed that he would have to undergo an operation. He was advised to

go to the hospital to be operated upon. A second doctor was called in, and he repeated the advice. The deceased was much affected by the opinions thus expressed, and he first became excited, and then depressed. He went to bed, and shortly afterwards he called out that he had poisoned himself. He said, when he made the statement, "I could not have known what I was doing." It transpired that he had taken a quantity of a mixture of arsenic, essence of cloves, and morphia—a mixture which he used in his business. He was taken to the hospital, where every effort was made to save him, but all was unavailing, and he died. The verdict was suicide while temporarily insane.

The Chelsea Hospital for Women.

The report of the committee, appointed in April last, to inquire into the management of this hospital, consequent on certain statements made by Dr. Parkes, the district medical officer of health, was presented to the Board last week. Dr. Parkes had made reflections on the general sanitary state of the hospital, and also on the mortality statistics during the year 1893, with special regard to the deaths amongst the inmates consequent on surgical operations. In their report the committee say that, in their opinion, of the twenty-six deaths after operations in the hospital, twenty were due to septicæmia, or were accompanied by symptoms of septic poisoning. Amongst these they include the cases which died from peritonitis. They find that the mortality from ovariectomy, hysterectomy, hysteropexy, and exploratory incisions is high. That from ovariectomy is nearly double the average mortality after this operation. In five out of eight exploratory operations no disease was found, or no organ sufficiently diseased to demand removal. Circumstances such as these, with a mortality of 44·4 per cent, render recourse to this method of diagnosis unjustifiable.

They are further of opinion that owing to want of system there has not been proper control of the medical staff by the managers of the hospital, and they recommend in order to give confidence to the public that in addition to the death-certificates required by law there should be a *post-mortem* examination made by an independent authority, who should be a pathologist, elected by the Committee of Management. A *post-mortem* examination should be made in every case unless objection is offered by the friends of deceased.

In consequence of this report the whole staff of the hospital has resigned. The staff comprises Drs. W. H. Fenton, Vincent Dickinson, Frank F. Schacht, A. D. Leith Napier, J. A. Shaw-Mackenzie, A. E. Giles, T. Watts Eden, W. Travers, and Fancourt Barnes. Their resignations have been accepted by the Board of Management. As a result of the inquiry, in the report of the Hospital Sunday Fund the hospital has been excluded from any benefit, "consequent upon the very unsatisfactory condition of its wards, and the public complaints made against the professional staff and general management."

Small-pox in St. John's Wood.

The recent outbreak of small-pox in this district originated at the shop of a grocer in Henry Street. The eldest son died from it, and no subsequent precautions were taken. Consequently, it rapidly spread among the poorer class of people of the neighbourhood. For several days six or seven ambulances were often to be seen waiting at the entrances of three courts. One court, named Henry Place, was almost entirely emptied; it was inhabited by, perhaps, sixty poor people. The doctors have had a severe pressure. It has been a common occurrence to see a crowd of people outside a doctor's house waiting to go in to be vaccinated. Disinfectants, eucalyptus oil and camphor, cream of tartar, Epsom salts, magnesia, and vaccination shields are in great demand. Sanitary inspectors are now parading the streets, and any person who has the slightest appearance of small-pox spots is removed at once to a local dispensary to await the ambulance for removal to the hospital ships at Long Reach. Such a calamity has never before befallen St. John's Wood, and it is to be hoped it will soon subside under the careful management of Dr. Winter Blyth and his assistants.

The Shop-boy and the Pail of Water.

At the July sitting of the Ashton-under-Lyne County Court, Alfred Worthington, farmer, Audenshaw, sued W. Kilvington, chemist, Ashton, for 9*l.* 10*s.*, as damage to horse

and expenses incurred thereby by the negligence of his servant on March 27 last. Plaintiff's statement was to the effect that on March 27 he was driving his milk-float along Wellington Road, Ashton. On passing defendant's shop a boy in the service of defendant dashed a pail of water in front of the horse, wetting the animal's nose and feet. The horse suddenly shied and fell to the ground, injuring its shoulder. The horse was worth 30%, and since the accident it had depreciated in value about 5%. In cross-examination plaintiff denied that the horse had a bad reputation as a shier. Mr. Garforth (for the defendant) said he could not find any ease in the law books where a master was responsible for the offences of his small shop-boy. There was no proof of negligence whatever. His Honour: What do you say he ought to have done, Mr. Pownall; put it down the gutter? Mr. Pownall (plaintiff's solicitor): If the lad had thrown the water down the gutter in the ordinary way it would have been all right. Mr. Garforth: Or drank it. (Laughter.) Mr. Pownall: Yes. His Honour gave a verdict for the defendant.

Fertilisers and Feeding Stuffs Act.

Reporting to Lindsey (Lincolnshire) County Court on the working of the Act, Dr. Voeleker states that since January 1, 1894, he had analysed four samples of fertilisers, and of these two were not taken in accordance with the Act. Of the others one was 2.1 per cent. deficient of soluble phosphates, and the second was 2.42 per cent. over the guaranteed soluble phosphates. Four samples of feeding stuffs were not taken in accordance with the Act.

Mr. Otto Hehner, in his first report to the West Sussex County Court, states that during the past quarter he has analysed four samples, all of which came from one purchaser, and consisted of superphosphates. Three of the samples were more or less deficient in soluble phosphates of lime, the deficiency in the worst case being 2.76 per cent. Not one of the sample complied with the invoice, which in each case stated the percentage of "insoluble phosphate" to be from 26 to 28 per cent., while in no case was the percentage of insoluble phosphate larger than 4.38 per cent. The vendor obviously had confused the expression "insoluble" with total, the total percentage of phosphate in each case tallying with that guaranteed by the vendor as "insoluble."

Chemists and Explosives.

The Home Office has issued a circular letter, dated July 24, 1894, stating that it is desirable that the attention of the local authorities and of the police should be directed to the importance of exercising special and vigilant observation with a view to preventing the acquisition by persons for an unlawful object, not only of explosives adapted for such purposes, but also of materials with which—if possessed of a little technical knowledge—they might be able to manufacture explosives, and enclosing a memorandum drawn up by H.M. Chief Inspector of Explosives, and stating that it had been deemed desirable for the Watch Committee to take steps to bring the circular under the notice of pharmaceutical chemists, chemists, druggists, and drysalters, oil and colour men, or other dealers in chemicals within their jurisdiction, and otherwise to obtain for the circular such publicity as may be practicable in order that any suspicious ease of purchase or possession may be promptly brought under the notice of the police.

Suicide of a Manufacturing Chemist.

Dr. Danford Thomas held an inquest last week at West Hampstead on the body of Reginald Dalrymple Smith, aged 36, manufacturing chemist, of 13 Compayne Gardens, Hampstead. The body was identified by Mr. H. W. Smith, the deceased's brother, residing at Highgate, who said that the deceased was unmarried, and lived with his mother. He had recently disposed of his business, on account of bad trade, and was on the look out for a similar one. Financially he was well off, had been in good health, and when witness last saw him a few days before his death he was in good spirits. He had no reason to suppose his brother would commit suicide. Of late he had suffered from sleeplessness occasionally. The death was caused from a bullet wound in the head. Other evidence was to the effect that the deceased shot himself, and that he was in the habit of taking sulphonal, morphia, and other drugs for the purpose of in-

ducing sleep. The Coroner remarked that under the influence of drugs people often did extraordinary things. Taking an excessive quantity of drugs was akin to taking excessive stimulants. For a time they had a great charm, but the habit grew, and could not be stopped. The jury returned a verdict of suicide while mentally deranged, and probably under the influence of narcotic drugs.

A Distinctive Poison-bottle Wanted.

An inquest was held, last week, at Manchester, by Mr. S. Smelt, Deputy City Coroner, on the body of Hannah Mather, aged 73, who had suffered from bronchitis, and took by mistake for her medicine a spoonful of liniment, which she was using for outward application. An emetic was applied, and she vomited, but did not recover from the effects of the poison. The jury returned a verdict of accidental death. Addressing the jurors the Deputy Coroner expressed the opinion that there ought to be legislation compelling dispensers of medicine to use a distinctive shape of bottle for poisons. In Germany, a bottle was used for poisons of a shape that could not be mistaken, and in some hospitals in this country fluted bottles, coloured blue, were used, so that people could tell them in the dark. If there had been a law compelling the use of a distinctive bottle for poisons this accident would not have happened.

A Chemist's Divorce Case.

In the Divorce Court on July 28, before Lord Justice A. L. Smith, the case of *Vine v. Vine and West* was heard. It was the petition of the husband, formerly carrying on business as a chemist in Marylebone, for a dissolution of his marriage with the respondent on the ground of her misconduct with the co-respondent. The parties were married at the Marylebone Registry Office in 1890, the petitioner being then a widower with six children, the eldest of whom was a daughter older than respondent. The misconduct was alleged to have taken place in a coffee-house in Edgware Road, where on November 4 Miss Minnie Bardon, chambermaid, swore she saw the respondent, who passed the night with a man as his wife. At the time of the marriage the widower was over 50 and the respondent 27. Mrs. Vine, in her defence, denied the misconduct, and gave evidence of her husband's cruelty since three weeks after her marriage. He had dragged her about by her hair, bit her shoulder, and she was compelled to summon him before the magistrate, who fined him 10% or 14 days' imprisonment in default, and he was, moreover, bound over to keep the peace for six months. Witness also swore that after one of their quarrels she made up with the petitioner and passed the night with him at the coffee-house in Edgware Road. Mr. Marshall Hall, counsel for the respondent, said she was the victim of a conspiracy got up by the petitioner. At a later stage, and in the absence of the petitioner, Mr. Carrington, his counsel, withdrew the petition. His Lordship said with the evidence before him it was scandalous to bring such charges against a wife. He dismissed the petition with costs.

The Supply of Dangerous Drugs.

An inquest was held at Walthamstow, on July 31, on the body of Mary Ann Irish (32), a married woman, who, it was alleged, died from the effects of noxious drugs. The husband, who gave his evidence in a very reluctant manner, stated that he did not call in a medical man until about an hour before death. Deceased had been to a Mr. Wilson, a chemist; she had been taking things to bring about a miscarriage. Dr. Edward Cornish, who made a post-mortem examination, said the cause of death was acute suppurative peritonitis. Drugs taken in large doses would produce the state of things he discovered. If medical aid had been called in earlier, life might have been saved. Richard Wilson, who had been acting as *locum tenens* to Mr. Andrews, chemist, of 94 St. Mary's Road, said that what he supplied the deceased with was sold over the counter every day. He did not recommend any of the drugs. He thought that what he supplied was not sufficient in quantity to do any injury. When he heard the woman was ill, he took her a bottle of medicine composed of tincture of opium and chloroform-water. Finding her very ill, he advised her to call in a doctor. He called in a friendly way, and not as a medical man.

The Coroner remarked that chemists had no right to prescribe. He thought further inquiries should be made. The inquiry was adjourned.

Carbolic Poisonings.

An inquest was held at Stanstead Abbots, on July 17, on the body of George Frederick Winterton, aged 3 years, who died through taking carbolic acid by mistake. Evidence by the mother showed that the acid had been used during the afternoon for disinfecting purposes and had been left on the table, from which the deceased must have taken it. Medical help was obtained, but the boy died about twelve hours afterwards. The jury returned a verdict of accidental death.

On July 24 Mr. T. Stanley held an inquest at the White Hart Inn, Walsall, on the body of Thomas Russell, of Caldmore. Deceased, who was a warehouseman, had had a fall a week since, and injured himself, since when he appeared to be getting very strange in his manner. Early the previous morning he came into his bedroom, and said he had taken carbolic acid, a bottle of which he had in his hand. The jury returned a verdict of suicide whilst temporarily insane.

A man named Thomas Darbyshire (58) committed suicide at King Cross, Halifax, on July 24. He had bought some carbolic acid at a chemist's shop, and drank the poison with fatal effect.

Albert Collins (30), of Cromwell Place, Birmingham, committed suicide last week by swallowing a quantity of carbolic acid. About mid-day he took a bottle containing the acid, which he used in his work, from a cupboard, and in his wife's presence drank the contents, from the effects of which he died.

At Maryborough, Queensland, on June 14, the wife of a slaughterman named William Spence, poisoned her five children by compelling them to swallow carbolic acid, and then took a quantity of the poison herself, and died within a few minutes.

On July 28 a Bradford warehouse girl, named Amy Bosomworth, who had been teased by other girls as to her complexion, they giving her the nickname of "Pretty Pale Face," purchased a quantity of carbolic acid and drank it. She died soon after.

Mabel Beard (17) committed suicide at Brighton last week by taking carbolic acid.

Dr. Jackson held an inquest, on July 26, on the body of Catherine Martin, at Thornton Heath. A little daughter of the deceased said that her mother sent her to buy a bottle of something, but she did not know what. Mr. Handford, of High Street, Thornton Heath, deposed that he remembered the little girl bringing him a note, and, after reading it, gave her a bottle, labelled "Poison," containing carbolic acid. In answer to the Coroner, witness said it was not compulsory to label a bottle of carbolic acid, although it was poison. The Pharmaceutical Society had petitioned the Government to make it law to have carbolic acid labelled "Poison," but they refused to do it, probably because the liquid was a household requirement. He generally labelled it to avoid any accident. The Coroner remarked that that was a wise course. The jury returned a verdict of suicide whilst of unsound mind.

At Bakewell, on Wednesday, an inquest was held relative to the death of Charles Gregory, aged 42, registrar of births, deaths, and marriages, who committed suicide by taking carbolic acid on the previous Monday. Evidence was given by Mr. John Robert Thompson, chemist, of Bakewell, to the effect that he sold to the deceased a 6d. bottle of carbolic acid on Monday morning. Carbolic acid was not, he said, a scheduled poison, and anyone could buy a 6d. bottle of it without inquiry. Deceased told him he wanted the acid for disinfecting purposes. In reply to the Coroner, the witness said carbolic acid was a poison, and in his opinion it ought to be scheduled as such. He thought a tablespoonful would kill a man. Dr. Fentem, one of the witnesses, told the Coroner he thought it a scandal to the country that carbolic acid was not scheduled to prevent it being so readily procured. It was a most dangerous poison, and produced a fearful death. The jury returned a verdict of suicide while temporarily insane, with the following rider:—"That in view of the many suicides through the use of carbolic acid, a

recommendation ought to go to the proper quarter that this dangerous poison be scheduled."

Cheap Soda-water.

Spilsby (Lincs.) is only a small market town with a population of fourteen hundred, but seems to be able to hold its own in the way of trade competition. There are three chemists' shops in the place, and all are in a blaze with posters advertising best soda-water in syphons at 1½d. each. Ready-mixed paints are also obtainable at 3½d. per lb.

Chemists at Cricket.

On Saturday, July 28, Messrs. Burgoyne, Burbidges & Co. played their return match with Messrs. May & Baker on the former's ground at Balham, when Burgoyne proved victorious by 46 runs, the scores being B. B. & Co. 73; May & Baker 27. The chief scorers for the victors were Burghes (21), Moxon (21). Burghes also took 8 wickets for 7 runs.

Scotch News.

Chemist's Assistant Poisoned.

Last Thursday, Patrick Alexander Tulip, chemist's assistant, was found dead in bed in the house where he resided at 10 Cornwall Street, Edinburgh. A bottle containing prussic acid was found by his bedside, and in Dr. Littlejohn's opinion death was due to that poison. The deceased, who had been in indifferent health for some time, had, it is said, been in the habit of prescribing medicines for himself. He served his apprenticeship with Messrs. James Robertson & Co., chemists, Edinburgh, and was subsequently assistant to Messrs. Gardner & Ainslie, also of Edinburgh, whose employment he left about twelve months ago for the purpose of studying analytical chemistry under Dr. Stevenson Macadam, and he was engaged in that pursuit at the time of his death.

French Pharmaceutical News.

(From our Paris Correspondent.)

THE EXTRACTION OF NICOTINE FROM TOBACCO-JUICE.—The Government Tobacco Monopoly are giving this subject attention, and they claim to have succeeded in obtaining a product of high concentration and uniform quality. They think there will be a large demand for it for the destruction of insects in agriculture and horticulture, and also from South America and other sheep-raising countries as a remedy for scab. Several millions of pounds of nicotine are annually sold in Uruguay and the Argentine Republic, but the quality is very variable. M. Frayssé, a Buenos Ayres merchant, after making two journeys in the countries in question, with a view to thoroughly studying the matter, has just been appointed special agent of the French Government for the sale of the product at Rio de la Plata. The Government process has been devised by M. Schlossing.

NATURAL MINERAL WATERS.—The Academy of Medicine has unanimously adopted the report of the Committee on Mineral Waters, presented by M. Albert Robin. There were only two members present. The recommendations are:—1. The sale of mineral waters which have been decanted or artificially rendered gaseous should not be allowed by the authorities. 2. Every application to the Ministry for authorisation should be accompanied by the certificate of a competent official that the water has not thus been already manipulated, and should embody the promise of the proprietor not to resort to these processes. 3. Reservoirs should be hermetically closed, and should be emptied at least every twenty-four hours. They should be so placed that the spring flows direct into the reservoir. Bottles should be thoroughly sterilised, and all causes of pollution during bottling carefully avoided. 4. Notice of these new arrangements should be sent to the proprietors of all springs already authorised, and three months should be given them to conform therewith.



THE members of the Pharmaceutical Conference, who reached Oxford on Monday last, were almost without exception veterans who have followed the Association to

at least a dozen of its temporary homes. The local authorities did not anticipate a numerously-attended meeting, but the accommodation provided by the hotels of the city was strained to its utmost. The Randolph, the Clarendon, and the Mitre were the chief resorts, but some of the knowing ones, who were going to stay a week or so, had been clever enough to secure some of the numerous undergraduates' lodgings in the city at very moderate prices. This is the way in which the majority of the British Association *savants* will house themselves next week, and it is the only way in which Oxford could meet such an invasion. All Monday afternoon learned druggists were to be met with, exploring quadrangles, gazing at queer old stone images, or surveying from the roof of the Radcliffe the marvellous agglomeration of spires and towers and turrets, dingy prison-like walls and windows, dotted here and there with marvellous spots of verdure. Even the most frivolous and nonconforming among them paid a tribute of hearty veneration to the noble old church, now undergoing renovation, where Cranmer, Ridley, and Latimer had maintained the faith, and where Laud, and Pusey, and Newman had preached. And there was not a barbarian druggist in Oxford that day who did not repine at the cruel fate which had prevented him from sharing for a few short years in that glorious university life which is one day to be, as Cardinal Wolsey wished it to be, the rightful inheritance of every

British youth. Before evening "Brasenose," and "Balliol," and "Merton," and "Maudlin" were familiar names and spots. There was a goodly muster of the Executive Committee at the Randolph, to finally arrange the programme, and simultaneously a little band of hopeful delegates met at the same hotel to organise a Federation of Local Associations. A little later came

THE RECEPTION.

This ceremony and entertainment, which has become an established feature of the conferences, was held on Monday evening in the grand hall of Christ Church. The guests were received by the President and Mrs. Martin, and when the majority of them had arrived a brief but very happily expressed address of welcome was delivered by the Rev. Canon Ince, D.D., Regius Professor of Divinity in the University. Dr. Ince first apologised for the absence of the Dean of the College, Dr. Paget, who was compelled to be absent on some function in connection with Westminster School. As the son of an eminent member of the medical profession he would have been peculiarly qualified to appreciate the studies of the Conference on the basis of the medical art. He himself, however, had somewhat of an hereditary claim to welcome the Pharmaceutical Conference in that hall. It was perhaps known to many of the older members of the Conference that his (Canon Ince's) father, who had died some forty years before, was one of the founders, and in the year 1850 a President, of the Pharmaceutical Society. The lot of pharmacists now was cast in happier times than his. Brought up in the city of Chester, he had little opportunity of studying the sciences on which his business was founded. But he (the speaker) well remembered his father's note-books, which showed how carefully he had worked up all the sources of information at his command. Besides his hereditary connection with pharmacy, he had a brother, who, he believed, was well known among his hearers, not only for his scientific attainments, but also for his contributions to pharmaceutical literature. Canon Ince next briefly touched on the foundation of the hall by Cardinal Wolsey, and drew attention to the series of interesting portraits of the famous deans, statesmen, divines, and students which adorned its walls. He mentioned especially the portraits of Canning, Gladstone, Pusey,

and John Wesley. He concluded by expressing hearty good wishes to the Conference.

The President of the Conference replied, thanking the governing body of Christ Church and Canon Ince for their kindness in allowing them to assemble in a place so charming for its antiquity and its beauty; and for the rest of the evening a programme of music was provided, and light refreshments were served in a room close by.

Among the company in the hall were six of the past Presidents—namely, Mr. T. B. Groves, now out of harness and fresh from a visit to Australia; Mr. G. F. Schacht, Mr. Richard Reynolds, Mr. S. R. Atkins, Mr. Charles Umney, and Mr. W. Martindale. The Messrs. J. H. and H. Mathews and Mr. G. C. Druce represented the local pharmacists, and were indefatigable in their kind attentions to guests.

On leaving every visitor was presented with a very interesting and useful handbook on Oxford and its University, "with the compliments of the editor of the *Pharmaceutical Journal*." It contained a pleasantly-written historical sketch of the city and the University, with maps and all particulars to guide the stranger. The programme of the Conference was also given, and numerous illustrations added to the attractiveness of the *brochure*.

TUESDAY, JULY 31, 1894.

THE OPENING OF THE CONFERENCE.

The first working-day of the Pharmaceutical Conference opened with fine and warm weather, and as the hour of 10 A.M. drew near little groups of pharmacists and their lady friends were to be seen outside the picturesque archway of Balliol College, and in the quiet quadrangle, waiting for the opening of the session, and the arrival of the Mayor and his party. As the opening hour approached members and visitors—numbering somewhere about 250—gathered in the beautiful hall which had been placed at the convenience of the Conference by the courtesy of the authorities of Balliol College.

WELCOME OF THE CITY AND UNIVERSITY.

A few minutes after 10, the President (Mr. N. H. Martin) entered, accompanied by the Mayor of Oxford (Mr. Alderman Gray), Sir Henry Acland (Regius Professor of Medicine at the University of Oxford), and the Master of Balliol (Professor Caird). There were also present on the platform Messrs. Michael Carteighe (President of the Pharmaceutical Society of Great Britain), Groves, Atkins, John Moss, William Martindale, Reynolds, Gerrard, Charles Umney, Schacht, Holmes, Mathews, Naylor and Ransom (Honorary Secretaries).

Professor CAIRD (Master of Balliol) at once rose, amid applause, to welcome the Conference on behalf of the University. He said he would not take up much of the time of the Conference as he was absolutely ignorant of the subject of which it treated. His acquaintance with medicines had been gained in the ordinary way of taking them, and he had never gone into the subject of analysing their constituents. His business was to welcome the Conference to the hall of Balliol. He thought such conferences between those who were occupied with an important subject of knowledge were of the highest value. They brought men together to enable them to see how far each of them had advanced, to compare their ideas; and often thus they gave a great stimulus to the subject with which they were con-

cerned. He thought the hall of Balliol could not be better occupied than by such a Conference as this. (Applause.)

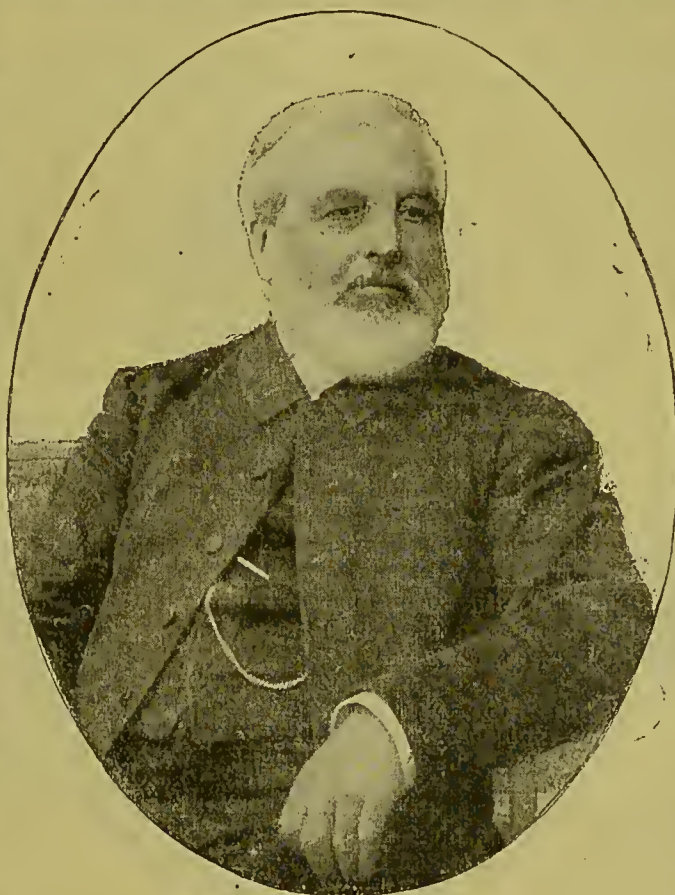
The PRESIDENT said he was sure they were all greatly indebted to the Master of Balliol for his kindness in placing the hall at their disposal, and coming there to say the kind words they had heard. He thought it would be their pleasure that he should thank Professor Caird on their behalf. (Applause.)

The MAYOR of OXFORD (Mr. Alderman Gray), who rose next, was received with applause. It was his pleasing duty he said, to say just one word of welcome to them on behalf of the city. Since he had been in Oxford—now nearly a quarter of a century—it had been a growing custom, year by year, to receive deputations and conferences and visitors representing learned societies in England. He need hardly tell them that it was the hope of the citizens that those meetings had resulted in good. He hoped on this occasion, when he was so pleased to see them, that they would thoroughly appreciate their noble city. The Conference was a most interesting one, established as it was to watch over

to a large extent, he believed, the health of our people. He thought they were greatly indebted to the Conference for the beautiful handbook which set out their arrangements. He had read it with interest and pleasure, and he was better up that morning in the history of his adopted city than he had ever been before. (Laughter.) It was a work for which every citizen who read it should be most grateful, and he hoped his friend, Mr. Druce, would take some means of giving that handbook a very wide distribution. It was most ably written, and of interest from beginning to end. (Applause.) On behalf of the citizens, and for himself particularly, he wished them a most hearty welcome, and he felt that they would meet with nothing but kindness and courtesy from his fellow-citizens. (Loud applause.)

Sir HENRY ACLAND (Regius Professor of Medicine of the University of Oxford) then welcomed the Conference on behalf of the University. He said that his welcome was not only on behalf of the University, but also on behalf of the nation and of science. He spoke to a body of men who he was sure would not

consider that an expression of exaggeration. The President and he, and no doubt many there present, were aware that the whole question of medical science, and along with it the question of scientific pharmacy, was undergoing a change as well as a course of progress and enlargement which the world had never seen before. (Applause.) It depended upon various causes—it depended upon the progress of biology, on the broad views taken of the whole nature of life on our planet, and especially with regard to themselves upon the fact that attention was being given throughout the whole world not really so much to the treatment of disease as the prevention of it. (Applause.) It was a point which he might, perhaps, not have ventured to state if it were not that in that book which they all knew—the *Extra Pharmacopœia*—that fact was clearly seen—(applause)—especially in one expression of not more than three lines in the last edition of that volume, that the pharmacists of this country are now considering the question of bacteriological studies with relation to the treatment of disease. He owed, as he said to the Pharmaceutical Society in London several years ago, a life-long debt of gratitude to English pharmacists. When, at a great medical school in



THE REV. CANON INCE, D.D.,
Regius Professor of Divinity.

London, in 1840, he was at the commencement of his education there was no teacher of pharmacy. This was to him most unsatisfactory, and Peter Squire—(loud applause)—who did *not* take pupils, made an exception to prove the rule, by allowing him the run of his house from cellars to attics to see every process that went on in that establishment, and there he saw the whole of the secrets of that business. The following year he found there was no teaching on practical chemistry, and another member of the Pharmaceutical Society, Mr. Lloyd Bullock, took him in, and in the laboratory behind what was called the shop he worked for several weeks, instructed and scolded—(laughter)—and taught in a way that could not have been surpassed. He had a life-affection for those two men, and he should have been ashamed of himself if he had not seen them to state that. He saw the value of character in those two men, and he would undertake to say Peter Squire, as far as his knowledge went, never had anything in his house in the way of his business but what he believed to be of the very best; and he had seen Lloyd Bullock, a first-rate scientific chemist, throw away in a passion—he was a very

PRESIDENTIAL ADDRESS.

GENTLEMEN,—At the outset of my address I desire to conform to a custom which I think we do well to honour, and that is to express to you my sense of the distinction which you have conferred upon me by electing me to be your President. To be thought by my *confrères* to be fitted in some small degree to stand in the place which has been occupied and adorned by such distinguished men and pharmacists as Deane, Hanbury, Stoddart, Brady, Redwood, and others who have occupied this chair is a sufficient cause for modest and honourable self-respect, and I should not be human if I did not appreciate that honour, and feel proud of the dignity. I do not propose to occupy your time by expressions about my own unworthiness, for although the fact, and the causes of it, are better known to me than they can possibly be to you, the attempt to put them into words would miss that ring of true sincerity which I have tried to make the touchstone of my life. I prefer to accept *your* decision in silence as to my own shortcomings, and to tell



From a photograph by W. H. Wheeler, High St., Oxford.

BALLIOL HALL.

passionate man—a whole evaporating-dish of ammonio-citrate of iron because he thought it had not been properly made. He saw there that they not only wanted science and education, but they also wanted personal character and high motives as well as knowledge. (Applause.) He was grateful to pharmacists for joining medical men in the national scientific work which in one sense they were beginning for the next generation, and in another sense had already completed, leaving, he might say, a condition of such complexity and entanglement and variety that he often wondered how it was possible for pharmacists to satisfy the often unreasonable requests of the doctors. (Loud applause.)

The PRESIDENT then thanked the speakers for the welcome extended to the Conference by the city and University, referring especially to the remarks of Sir Henry Acland. He tendered the thanks of the Conference to the Mayor of Oxford, to the Master of Balliol, and to Sir Henry Acland for the very hearty welcome they had given them. (Loud applause.)

The hall was well filled with as distinguished an audience as has been present at the opening of any Conference, including a good sprinkling of ladies, when Mr. Martin proceeded to read the

you that since your choice has fallen on me, I have done my best to make my unworthiness more worthy of your acceptance.

As you are all aware, we are indebted to the courteous invitation of the pharmacists of this city and neighbourhood for our meeting here to-day, and I congratulate the Conference upon the opportunity of assembling for the first time in its history in this ancient university city.

OXFORD

is as fresh to me as I have no doubt it is to many of you, but we shall every one of us share an Englishman's just pride in the renown of this historic seat of learning. Perhaps to some of us it was a dream and a hope of our early days that our own education would have embraced an Oxford or Cambridge career, but such dream may have been rudely dispelled by the force of circumstances, and the ideal of education which we thought could have been obtained here, by the culture of surroundings, we have only been able to seek after by much plodding and gleaning in outside fields. If I were free to occupy your time with thoughts other than those connected with pharmacy, what a fruitful source of inspiration this place would be! The beauty and the history of its buildings, the men who have walked these streets and

lingered in these ancient halls and colleges, and who have gone out from here to influence so profoundly the whole history of the world, would indeed furnish any audience of Englishmen with food for profitable meditation. In our thoughts about Oxford most of us will have connected it with classical and mathematical studies, and with the remembrance that here have been trained some of the deep thinkers in the realms of philosophy, of theology, and of history. To us as pharmacists, however, and as workers in the domain of natural history and science,

THE OXFORD MUSEUM

cannot fail to be an object of the deepest interest, and, while I hope you will take away from Oxford many delightful mental pictures of art, of architecture, and of natural beauty, I would commend the museum and all that pertains to it to your most thoughtful attention and study. I may not linger here, but I should like to point out the wide difference which exists between the Oxford Museum and our ordinary conception—and, I am afraid I must add, our experience—of museums in general. In the dictionary you will find a museum defined as a "repository of interesting objects," and in too many cases in this country they are "repositories," and nothing more. Here, however, you will find the museum is not the grave of curious and interesting specimens, but is the centre of a vital contact with nature and science. You will find the museum proper surrounded by suitable buildings and by every provision for education, for study, and for research in the various branches of natural science; and the objects in the museum are used to fulfil their proper function in illustrating the lectures of the professors and enriching the knowledge of the students. In my own city we have a natural history museum, rich in specimens; and we have colleges of science and of medicine, under wholly different management, at no great distance, and every lover of scientific truth in the North must regret with me that the dry bones of the museum are not vivified

by contact with the living teachers and students of science. It is an evidence of the clear judgment and breadth of view which university life and training imparts, that here in Oxford the museum has not been conceived in the spirit of the miser, to collect and to hoard, but the collections are used to communicate pure streams of accurate knowledge to all who will come and drink at this fountain. You will see that medicine forms no inconsiderable part of the teaching associated with the museum, but, according to Sir Henry Acland, "the function of the Oxford Museum towards medicine is to train good scientific observers and thinkers to become observers and thinkers in pathological and therapeutic and preventive processes." I trust it is not a mere dream to hope that some day pharmacists will be found here amongst the students laying the foundation to become "good scientific observers and thinkers."

The subject of my address will be

MEDICINE AND PHARMACY,

and, however well the story of these may have been told by my predecessors, I am by virtue of my position under the

necessity of keeping to the beaten track, and I have no desire even to shirk the responsibility. I purpose to take full advantage of my position as your President, and to speak to you *ex cathedra*. I do not expect that you who hear me, or that those who may afterwards read what I shall say, will agree with all that I express; but of one thing I beg to assure you—my views upon this subject have not been hastily adopted, and they are not lightly held. They are the outcome of more than thirty years of a wide contact with pharmacy and medicine, and of loving service to pharmacy, which during that period has been to me not alone a source of income, but the means of bringing me into contact with a large proportion of the purest pleasures that have come into my life.

It is not possible to exaggerate the importance of medicine and pharmacy in the body politic. The duty of healing and caring for the sick should call forth, in every right-minded man with the spirit of true nobility in his soul, feelings of the highest chivalry and honour, and he is surely one of the most miserable of human beings who is satisfied to pursue these callings for mere gain, and to measure the success or failure of his life devoted to medicine by a money standard.

Our own daily work and our thoughts are more intimately connected with pharmacy, but we meet medicine on the common ground of drugs, their preparation and application in the treatment of disease. Medicine in the persons of those who practise it, and in the pages of its representative journals, does not hesitate to criticise and even to castigate pharmacy, and I propose to extend my remarks to revealing shortcomings in the domain of medicine.

Let us turn first, however, to pharmacy, and ask the question whether in its own special domain its condition is satisfactory, and, if not, what is the cause of this, and what suggestions for its improvement can be offered. The Pharmaceutical Society has had an existence of over fifty years, and we have had a compulsory Act of Parliament for twenty-six years. In that period advances have been made

which are obvious, and I need not recount them any more than I need place before you confirmatory evidence of the fact that the majority of those who are on the register of chemists and druggists are dissatisfied with the actual practice of pharmacy to-day. Complaints are loud and deep against the Pharmaceutical Society because it does not bring about an improved condition of things, but in no case have I seen the confession by any large section of men on the register that they have failed to realise the privileged position in which they were placed by the Act of 1868, and that they have neglected to conform to the keynote and true spirit of that Act, which was—education. I think you will agree with me that the greatest evil from which pharmacy is suffering to-day—unbridled and dishonest competition in prices—is mainly due to the enormous extent to which the use of

PROPRIETARY MEDICINES

has increased, and to the fact that this has played the rôle of introducing grocers, limited companies, and other unqualified and unregistered individuals and bodies to assist in their distribution, and has tempted them to add to their



N. H. MARTIN,

President of the British Pharmaceutical Conference, 1894.

London, in 1840, he was at the commencement of his education there was no teacher of pharmacy. This was to him most unsatisfactory, and Peter Squire—(loud applause)—who did *not* take pupils, made an exception to prove the rule, by allowing him the run of his house from cellars to attics to see every process that went on in that establishment, and there he saw the whole of the secrets of that business. The following year he found there was no teaching on practical chemistry, and another member of the Pharmaceutical Society, Mr. Lloyd Bullock, took him in, and in the laboratory behind what was called the shop he worked for several weeks, instructed and scolded—(laughter)—and taught in a way that could not have been surpassed. He had a life-affection for those two men, and he should have been ashamed of himself if he had not seen them to state that. He saw the value of character in those two men, and he would undertake to say Peter Squire, as far as his knowledge went, never had anything in his house in the way of his business but what he believed to be of the very best; and he had seen Lloyd Bullock, a first-rate scientific chemist, throw away in a passion—he was a very

PRESIDENTIAL ADDRESS.

GENTLEMEN,—At the outset of my address I desire to conform to a custom which I think we do well to honour, and that is to express to you my sense of the distinction which you have conferred upon me by electing me to be your President. To be thought by my *confrères* to be fitted in some small degree to stand in the place which has been occupied and adorned by such distinguished men and pharmacists as Deane, Hanbury, Stoddart, Brady, Redwood, and others who have occupied this chair is a sufficient cause for modest and honourable self-respect, and I should not be human if I did not appreciate that honour, and feel proud of the dignity. I do not propose to occupy your time by expressions about my own unworthiness, for although the fact, and the causes of it, are better known to me than they can possibly be to you, the attempt to put them into words would miss that ring of true sincerity which I have tried to make the touchstone of my life. I prefer to accept your decision in silence as to my own shortcomings, and to tell



From a photograph by W. H. Wheeler, High St., Oxford.

BALLIOL HALL.

passionate man—a whole evaporating-dish of ammonio-citrate of iron because he thought it had not been properly made. He saw there that they not only wanted science and education, but they also wanted personal character and high motives as well as knowledge. (Applause.) He was grateful to pharmacists for joining medical men in the national scientific work which in one sense they were beginning for the next generation, and in another sense had already completed, leaving, he might say, a condition of such complexity and entanglement and variety that he often wondered how it was possible for pharmacists to satisfy the often unreasonable requests of the doctors. (Loud applause.)

The PRESIDENT then thanked the speakers for the welcome extended to the Conference by the city and University, referring especially to the remarks of Sir Henry Acland. He tendered the thanks of the Conference to the Mayor of Oxford, to the Master of Balliol, and to Sir Henry Acland for the very hearty welcome they had given them. (Loud applause.)

The hall was well filled with as distinguished an audience as has been present at the opening of any Conference, including a good sprinkling of ladies, when Mr. Martin proceeded to read the

you that since your choice has fallen on me, I have done my best to make my unworthiness more worthy of your acceptance.

As you are all aware, we are indebted to the courteous invitation of the pharmacists of this city and neighbourhood for our meeting here to-day, and I congratulate the Conference upon the opportunity of assembling for the first time in its history in this ancient university city.

OXFORD

is as fresh to me as I have no doubt it is to many of you, but we shall every one of us share an Englishman's just pride in the renown of this historic seat of learning. Perhaps to some of us it was a dream and a hope of our early days that our own education would have embraced an Oxford or Cambridge career, but such dream may have been rudely dispelled by the force of circumstances, and the ideal of education which we thought could have been obtained here, by the culture of surroundings, we have only been able to seek after by much plodding and gleaning in outside fields. If I were free to occupy your time with thoughts other than those connected with pharmacy, what a fruitful source of inspiration this place would be! The beauty and the history of its buildings, the men who have walked these streets and

lingered in these ancient halls and colleges, and who have gone out from here to influence so profoundly the whole history of the world, would indeed furnish any audience of Englishmen with food for profitable meditation. In our thoughts about Oxford most of us will have connected it with classical and mathematical studies, and with the remembrance that here have been trained some of the deep thinkers in the realms of philosophy, of theology, and of history. To us as pharmacists, however, and as workers in the domain of natural history and science,

THE OXFORD MUSEUM

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sale a large number of the drugs in common use, and finally has evolved that monstrosity of the nineteenth century, the "company pharmacist." Who is to blame for this? Surely not the Pharmaceutical Society, for whatever individuals may have done, the whole spirit and teaching of the Society are in direct opposition to pharmacists becoming the medium of distributing articles about which they have absolutely no personal knowledge, and about which they can give neither to physician nor to patient any information based upon their scientific training and experience as pharmacists. No, it is not the Pharmaceutical Society which is to blame, but it is the men on the register who, in the past, in their several localities, by their endorsement of the falsehoods of these advertising quacks, have created on the part of the public this enormous and unhealthy demand for proprietary medicines, and have brought this Nemesis upon pharmacy.

Here I must mention a further development of the proprietary-medicine system which has recently taken place, and which is fraught with far more peril to the existence of pharmacy than the proprietaries for domestic use, and in this both medicine and pharmacy have been ensnared by the wily commercial adventurer. In various guises, and by persistently advertising claims to improvements in pharmacy, men, seeking gold, have induced medicine and pharmacy to become their tools to enable them to reach the million. There are two chief methods by which this has been accomplished: one is by the registration of a word for some particular form in which drugs may be administered; the other is by the invention of names ("discretionary names" I see one medical writer euphemistically calls them) which are used as blinds to suggest some original or added virtue for compounds the properties of the ingredients of which are perfectly well known. These enterprises would have met with but poor success if medical men and the medical journals had been true to themselves and to their own teaching. You can imagine the incredulous smile with which an accomplished physician would receive the assertion of some antiquated herbalist that he knew a weed which was a universal cure; but when such a weed is made the basis and furnishes the name to a compound manufactured by an enterprising company, and is presented to him with a sample bottle, a pamphlet bristling with comments from medical journals and testimonials, under the name of "Liquor Curaline Co.," the amiable physician falls into the trap, and his next patient is dosed with the latest improvement in modern pharmacy—"Liq. Curaline Co."

THE MEDICAL JOURNALS,

however, in their advertising columns and in their literary pages are the strongest supporters of these quackeries. I do not suggest, and it would be preposterous to suppose, that the learned and versatile editor of the *British Medical Journal* would listen to an appeal of this sort:—

DEAR SIR,—Advertising as we do in your valuable and esteemed medium, and being likely to continue the same in the future on an extensive and liberal scale, we shall esteem it a favour if you will kindly give us at an early date the superadded benefit of a free editorial, the substance of which we beg respectfully to submit herewith.

We are, dear Sir, yours faithfully,

BUNKUM, QUACK & Co.

There cannot be the slightest doubt of the reception which such a letter and such an appeal would get at the hands of the editors and proprietors of our leading medical journals. But let B., Q. & Co. approach the matter by advertising on an extensive scale in the journal, and then send samples for analysis and report, and if we read nothing stronger it will at least come out something after the following:—

Skinnaline.

It is claimed that the substance contains the active principles of skin in the proportion of 20 grs. to the pound. We have put these claims to the test as far as possible, and we are satisfied that they are practically justifiable, but we are not able to endorse all that the discoverer claims for the preparation, although there is no reason to doubt his statements.

To the stern logic of science this is lukewarm enough in all conscience, but the astute advertiser is satisfied. He probably did not expect what was impossible—any definite

analysis and report—but he knows, cautiously worded and valueless as the paragraph is as to the merits of skinnaline, he has only to quote the paragraph and add the magic words of the title of the journal, and the commercial result to him will be increased a hundredfold. I venture to assert that such notices are absolutely unworthy of the highest and best traditions of medical journalism, and they are the ruin of scientific medicine and pharmacy. I could give you many illustrations, but forbear to weary you. I believe the Americans were the first to make the discovery that the doctor might be made a cheap and efficient means of advertising, although the Germans have not unsuccessfully cultivated the same field, and it is to this source that we owe the experience that the consulting-rooms of the medical practitioner are deluged with "physicians' samples" of the most arrant quackery the world has ever seen. When will English medicine have the courage to purge itself of this corruption?

It will be interesting, I think, to inquire into the possible reasons why medical men have so readily

FALLEN INTO THESE TRAPS,

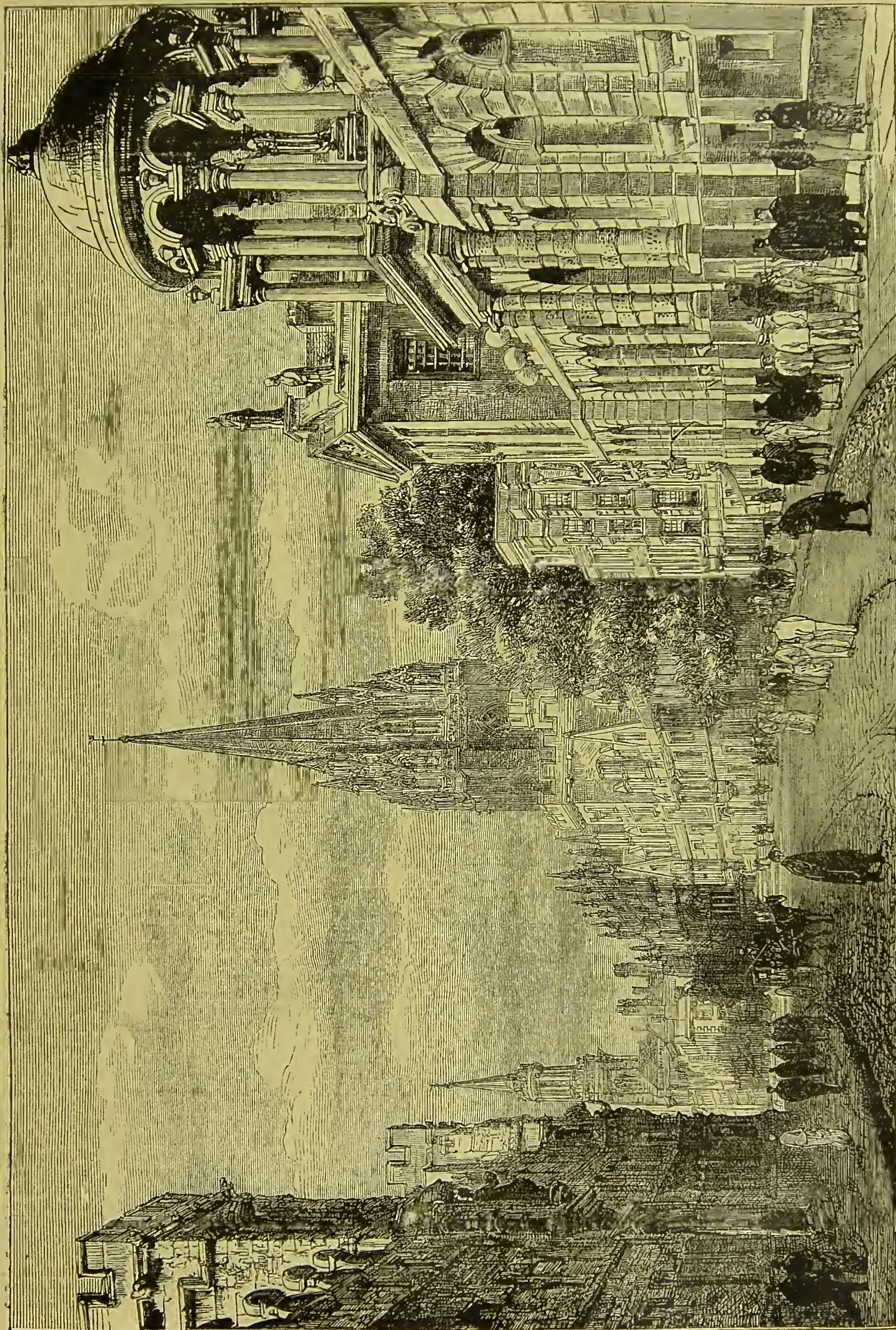
and I think one great and most important cause has been the neglect to give the medical student adequate training in the knowledge of the properties and uses of drugs. Since the abolition of apprenticeship to a general practitioner, which used to precede in medical education the scientific course which in those days was called "walking the hospitals," the tendency has been for more and more of the medical student's time to be taken up with the abstract sciences which are the basis of his art, and the practical side of being able to treat and cure disease by the intelligent use of medicines has been very largely neglected. The result is that instead of the diagnosis and the cure going together in intelligent connection, they have been separated from each other, and it has happened to a brilliant and successful student of our medical colleges that, after having made the most exact diagnosis, the limit of his powers has been reached, and his grim function has been to watch the patient die, and to be able to predict the precise pathological changes which would be revealed at the necropsy. Another great cause, which I am sure has had a wider influence in discrediting the use of drugs in the treatment of disease than we can have any idea of, is the tender system under which many hospitals and infirmaries—where young men get their first lessons—are supplied with drugs. It is no secret that large quantities of inferior and almost useless drugs are year by year placed on the market, and I do not think it is in the least unfair or unjust to infer that these must largely find their way into the institutions and into the possession of those who make the price their sole criterion of value. It follows, quite in logical sequence, that teachers and taught are influenced by the variable and uncertain results obtained, and that, sometimes in despair and sometimes in contempt, there is produced a lack of faith in drugs as instruments of healing. I do not underrate in the smallest degree the importance of the medical student acquiring sound and extensive knowledge of physiology, pathology, and so forth—they are absolutely essential subjects—and I would not belittle the triumphs and advances which recent years have seen in these directions; but the subject of profound importance to the patient is to be cured. The exorbitant claims sometimes advanced on behalf of such subjects as physiology, pathology, and chemistry have been fraught with no little danger to the art and practice of medicine, and it has happened that many a general practitioner, who in the realm of physical danger would be a hero, has been deterred by a snicker or an assumption of superiority on the part of some specialism from contending for the reality of the knowledge which is the result of his own life-long experience in the use of drugs, and the knowledge itself has, in some cases, been lost to the service of medicine in its combat with disease.

To return to pharmacy, the small amount of relative success which has resulted from the work of the Pharmaceutical Society is, in my opinion, largely due to

THE GRAVE MISTAKE

which was made in the fifth clause of the Pharmacy Act, 1868. By that clause it was decided to place on the register,

On the opposite page is a view of the High Street, Oxford, showing on the right Queen's College, and higher up the street the fine spire of the University Cathedral. The old building on the left is University College.



without examination and without fee, all who claimed to have been in business as chemists and druggists prior to December 31, 1868. If an adequate fee for this privilege of being registered had been imposed, I think it would have had the effect of considerably reducing the number of those who desired to be placed on the register, from purely trade motives, and it would have created in the minds of those who were registered a wholesome feeling of respect for the body to which it had cost something to become affiliated. The result was that a large number of persons were placed upon the register who were actually antagonistic to, and were active propagandists against, the educational standards of the Society. It was probably thought that in the course of a generation these men would all die off, and that when the register was composed entirely of men who had been placed there as the result of examination (again without a fee, I regret to say) a different spirit would prevail. But, unfortunately, our experience has shown it to be otherwise, and the baneful influence of the trade element is still predominant on the register, to such an extent that it has captivated the judgment of some prominent men in the Society itself, and threatens to overthrow the very principle upon which the Pharmacy Act was obtained.

Pharmacy, as practised by the registered chemists and druggists of this country, is attempting an impossibility; it is seeking to grasp the commercial advantages, which in other callings can be obtained by the exercise of legitimate trade, whilst it desires to retain the rewards which properly belong to professional services. This cannot go on much longer, and pharmacy must make its choice between

TRADE AND PROFESSION;

but before I indicate in which direction I think the choice should be, let me briefly mention one or more of the prominent features which characterise the two.

The very essence of trade is that it is capable of indefinite expansion, and there is no limit to the extent to which a tradesman may sell his goods at the hands of assistants or through the agency of any number of intermediate persons between himself and the user of the article he sells. Apply this test to pharmacy, and you will see it is impossible for it to expand indefinitely in the fulfilment of its own proper functions of dispensing the prescriptions which the physician has written for the individual patient, or prescribing for the smaller accidents and ailments to which human beings are liable. There will perhaps spring into your minds instances of the indefinite expansion which has followed the advertising of nostrums; but that is not pharmacy, but in many cases is merely obtaining money under false pretences. You all know Jerome's friend who visited the British Museum to read up the treatment for "hay fever," and, plodding conscientiously through the book from A to Z, found that the only complaint he had not got was "housemaid's knee"; and so it is with nostrums. The complaint is, more often than not, suggested by the literature of the nostrum-monger before the nostrum effects the wonderful cure which is recorded in the testimonial.

The essence of a profession, on the other hand, is that the members of it receive a special education, and give evidence before a legally constituted body that they have been so educated; that the service rendered is personal and direct, and cannot legitimately be multiplied indefinitely through the agency of unqualified persons.

Tried by these criteria, I think you will agree that pharmacy, in the exercise of its legitimate function towards the public, is a profession, and is not a trade. English people through their Legislature admitted this in 1868 when, by statute, they laid down the conditions upon which pharmacy should be carried on, and imposed restrictions of a similar kind to those which had before that belonged to the other professions, and which were not and are not imposed upon any trade. How does it happen that, the very essence of pharmacy being a profession—that the Pharmaceutical Society and the Legislature having decided, in effect, that it is a profession—we seem as far off as ever from it being practically recognised as such by the pharmacist and the public? It is due to the excessive preponderance of the trade element and of the commercial spirit amongst the registered men. This has handicapped the Pharmaceutical Society, and rendered it impossible for the Society to advance upon the lines and in the spirit of the Pharmacy

Act. We have seen the kindred profession of medicine increase its curriculum, or period of compulsory training, from three to four years, and again to five years, and in so doing it has steadily and deservedly risen in public esteem and respect; whilst, notwithstanding the convictions and earnest desire of the Pharmaceutical Society, we have as yet no curriculum at all, and the voluntary training (for our examination) which our young men undergo, in a vast majority of cases, cannot be described by any less objectionable word than that of cram. The consequence is that notwithstanding that the English people were willing to accept pharmacy as, and to give it the opportunities of, a profession in 1868, they are almost compelled in 1894, by the conduct of those who practise it, to come to the decision that pharmacy is nothing but a trade after all, and so it comes to pass that the grocer and the company pharmacist are so far on the road to win the rights and the privileges which belong to pharmacy.

PHARMACY AS A TRADE IS A FAILURE,

and I go further, and say that pharmacy, as well as medicine, conducted as a trade and in the spirit of a commercial venture ought to fail. If we use our knowledge to exploit human ailments, to excite men's fears and to play upon human credulity for gain, we ought most ignominiously to fail. You will be prepared to hear that my own strong conviction is that pharmacy should realise its privilege and seriously proceed to take steps to accept its responsibilities as a profession, and no time should be lost in setting about it. I will only very briefly indicate the steps which are necessary, and trouble you as little as may be with small details. Our entrance-examination should be made a much more stringent test of a young man's intellectual powers and of his school training than it is. It is useless to expect men to be able to grasp the problems of organic chemistry whose knowledge of mathematics has not gone beyond the simple arithmetic which our present examination requires. This examination should include algebra and geometry, the Latin should be extended to a knowledge of the selected authors beyond a mere cram of the meaning of words, history and geography, and a modern language should be included, and the examination should be passed not earlier than at seventeen years of age, but before apprenticeship. Following this should come three years of actual (not nominal) apprenticeship, during which the powers of observation should be cultivated, and by continual exercise in the practical operations of pharmacy, under suitable instruction, all that deftness of manipulation and that wise caution in handling things which are characteristics of the trained pharmacist, should be acquired. A large amount of knowledge of the physical characters of drugs and preparations would necessarily be obtained during this period, and the apprentice whose mind was in his work would certainly do some reading in connection with it. Then should come the curriculum, or the period of enforced study, upon a syllabus taught in recognised colleges and schools throughout the country; this period should not be for less than two years, and the whole time of the student should be engaged in training and preparing for the work of his life. During this two years, at certain intervals the progress of the student should be officially ascertained, and at the end his fitness to become a pharmacist should be tested by one week or more of examination—written, oral, and practical—in the subjects of botany, chemistry and materia medica; and if the result was satisfactory, I would give the qualification and title of pharmacist. The training and examination should take the student at least as far—I should advocate further in some directions—as our Major examination, and I would abolish all intermediate names which even suggest qualification. When the pharmacist has undergone this, as a minimum of his training and proof of his qualification, I think he will have some right to consider himself, and to be considered by the public, a professional man. But now will arise in your minds the question that having elevated your pharmacist to the status of a professional man, what is he to do, and how is he to live? Medical men, to an enormous extent, dispense the prescriptions for their own patients, and they are exceedingly emphatic in their protest against the pharmacist prescribing. The treatment and cure of disease are the legitimate functions of medicine and pharmacy in co-operation, and no

rigid line of demarcation is possible. Broadly, the operations of surgery, the diagnosis of disease, and prescribing belong to medicine, and the preparation and dispensing of the remedies to be used in the treatment of disease belong to pharmacy.

DOCTORS' DISPENSING

is stated by many to be one of the chief, if not the chief, cause of the ills from which pharmacy is a sufferer, and demands in more or less dignified terms are made that this iniquity shall cease. I make no apology for the existence of this condition of things. Theoretically, it is undoubtedly better that dispensing shall be done by the pharmacist, and prescribing by the medical man; but when we pharmacists claim this as a right, and accuse medicine of unjustly usurping our functions, it is well for us to remind ourselves that medical men, although they may not now as frequently as of old take the degree of L.S.A., are the direct and legitimate successors of the old apothecary, and that the dispensing of medicine was their legitimate function. So much was this the case that, there being a doubt as to whether it was traversed by our own Act of 1868, the short Act of 1869 was

medical journals I am almost tempted to fear that for once medicine is thinking more of its share of the pecuniary reward than caring for suffering humanity. There is, however, I am sorry to say, a great deal too much prescribing by chemists, and some of it is of a most reprehensible kind. I know a case where a chemist treated a man suffering from rodent ulcer of the face for two years, all the time buoying the man up with the hope that it was getting better, and that he would cure it, until the face was so bad and the ulcer had spread to such an extent that, when it came under the notice of the surgeon, nothing could be done for the patient. If that chemist had met the man upon the highway and robbed him, he would have been liable to imprisonment; but having got the man into his shop, he not only robbed him of his money, but he rendered it impossible for the man ever again to be restored to health. For the dishonour which such men bring upon pharmacy, and for the irreparable injury which they inflict upon suffering humanity, I should like to give them several years of penal servitude. But there are innumerable small accidents and little ailments to which humanity is liable which quite



From a photograph by W. H. Wheeler, High St., Oxford.

NEW COLLEGE GROUNDS.

passed to preserve the right. Then, again, it is deep rooted in the habits of the English people to expect the doctor to supply the medicine he has prescribed, and any change can only come about by the slow process of educating the patients, and by the exhibition of good will and feeling between medicine and pharmacy. Before it can happen universally there is no doubt that pharmacy must have acquired such a professional standing and education as will enable it to perform its delicate and confidential function with the tact and reserve which is the outcome of prolonged training. The mistake (a very common one) which pharmacy is making is that it wants the reward before it has made the effort and suitably equipped itself for the service. I exhort the pharmacist of the future to be unrelenting in his efforts to raise himself and his calling to a professional status, and then I predict for him that in the natural course the dispensing of medicines will come to him.

CHEMISTS' PRESCRIBING

is quite as loudly complained of by the doctors, and when I read some of the letters and comments which appear in the

legitimately come within the province of pharmacy to treat, and the pharmacist, if he is wise, is a much safer man to treat these than the clergy and the laity, who are ever ready to prescribe for each other upon any and all occasions. The best and wisest exponents of medicine admit this right on the part of pharmacy, and welcome the service which is rendered by it to sufferers. Pharmacy may make some mistakes, but I know it has and does frequently send patients to medicine long before the patient or his friends would think seriously enough of the case to do so.

There should be no rivalries or jealousies between medicine and pharmacy, and the better qualified each of these may be to exercise its own share of the duties devolving upon both, the more will each of them respect the rights and the work of the other.

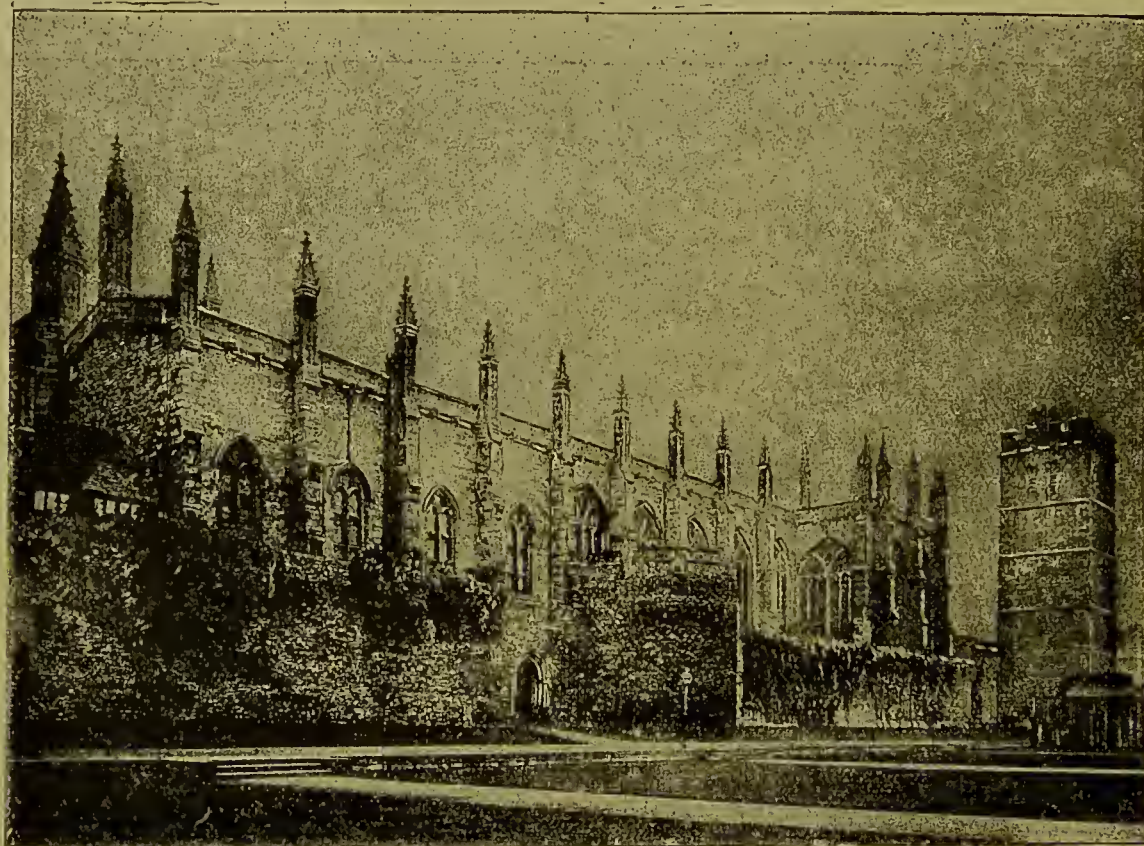
Before I conclude, one word on the principle upon which remuneration should be based. This is a question of the utmost importance to the English public as well as to pharmacists. John Ruskin says:—"You do not pay judges large salaries because the same amount of work could not be purchased for a smaller sum, but that you may give them

enough to render them superior to the temptation of selling justice." We cannot err in applying this principle to pharmacy, and deciding that the dispensing chemist must be paid at a rate of remuneration which will enable him to get his living honestly and openly, and render him superior to the temptation to increase his profit and his income by tampering in ever so small a degree with the quality of the drugs he uses, and with the health—and, maybe, the lives—of dear ones and of men important to the community. His remuneration should also enable him to devote sufficient time and care to every detail of his responsible work, and eliminate a very real source of danger which is unavoidable if the haste and the hustle of trade methods are adopted by pharmacy.

THE CONFERENCE

has entered upon the fourth decade of its existence, and possibly I should have made a better and wiser choice if I had addressed you upon its past achievements and its future prospects, but the other matters upon which I have touched

to differ, and to claim for the excursion day a very high place in the work of the Conference. It affords the opportunity as no other arrangement could do so well for men to meet; and I am quite sure that my own experience is by no means singular when I tell you that many, very many, of the best friends I have in pharmacy were first known to me through the opportunity of one of the Conference excursions, and, further, I could not exaggerate to you the benefit which I have received from the numerous conversations and informal discussions which always take place on those days. But it is with societies as with individuals—they tend to decay; and already more than once we have the alarm—the Conference is on its last legs. I do not believe it, as I feel sure it fulfils a purpose in the realm of pharmacy which is too important for the Conference to be left to decay, and that if we neglect the trust which has been handed down to us our successors will revive it. I would ask every member of the Conference to get at least one other member to join, and I do not think he can use a stronger argument than that, apart from the oppor-



From a photograph by W. H. Wheeler, High St., Oxford.

NEW COLLEGE,
Showing part of the City walls.

have seemed to me of greater importance. Let me say, however, briefly, that I think the record of this Conference has been eminently an honourable one, and that it has fulfilled in a high degree the functions for which it was called into existence. The story is written in the *Year-books*, and another phase of it is engraved in the hearts and memories of many of us who have been members almost from the beginning, and who have attended a large number of its meetings. It has added to our knowledge, enlarged our experience, and broadened our intellectual grasp of pharmacy; and, last but not least, it has been the means of bringing together, introducing to each other, and cementing friendships between men who practise a common vocation in districts as wide apart as Inverness and Cornwall. In this latter function the excursion on the last day has played no inconsiderable part. Amongst the critics of the Conference there are some persons who affect to sneer at the excursion as if it were sheer frivolity, and at variance with the avowed scientific objects of the Conference. I beg

tunity of attending and taking part in this annual scientific gathering of pharmacy, the *Year-book* which he will receive is worth many times the subscription. The *Year-book of Pharmacy* should find a place on the desk of every chemist and druggist in this land. In it he will find abstracts of papers from a larger number of sources than he can possibly consult for himself, and many of these papers may be of great value to him.

There is no occasion to disguise the fact that we do not get as many, or possibly as good, papers sent to the Conference as we should like, but when we consider the needs of a weekly Press, and the number of small societies, which absorb in the aggregate a large number of papers, our experience need cause us neither surprise nor alarm. I should like, however, to ask many of those who are doing original work, and writing papers in connection with pharmacy, to consider whether there is any place so suitable for them to be read as at these meetings. The authors may feel certain of a larger audience to listen to their papers, and a far more

capable set of men to discuss them, than can be found at any other time or place. In provincial towns the papers are read to a few local men, and the discussion is taken part in by fewer still; and even at the monthly meetings at Bloomsbury Square the discussions have a great tendency to fall into the hands of very few men. However capable these men may be, they cannot possibly have the wide and varied experience of the aggregate of the men who attend this Conference. I would, therefore, venture to urge thoughtful pharmacists to contribute papers to this Conference, and I should like them to come in such numbers that we may be compelled to add another day or two to our meeting.

I mentioned just now the friends whom we have made at these Conference meetings, and before I close I must briefly allude to those we have lost. The first name that will occur to you, I am sure, is that of our genial botanist, the late Professor Bentley, who was President at Nottingham in 1866, and at Dundee in 1867. Many of us knew him first and best at Bloomsbury Square as our dear and honoured teacher; but to many others the Conference must have been the means of their meeting him, and by all was he respected

may be able to contribute to the better understanding of the papers. (Loud applause.)

Mr. MICHAEL CARTEIGHE, as one of the Vice-Presidents of the Conference, was received with applause when he rose to propose a vote of thanks to the President for his address. There was an especial fitness in the fact of Mr. Martin being President. He was a Newcastle man, and the Conference was founded at Newcastle, and since the time of Mr. H. Bowman Brady they had not had a Newcastle man in the chair. There were also two out of the three men who might be said to have been founders—Mr. Reynolds, of Leeds, and Mr. Schacht, of Clifton—present with them that day. (Loud applause.) Referring to what Mr. Martin had said, he had never listened to an address with so much interest. They had had many able presidential addresses, but at no time within the history of the Conference had plain facts been put before the members so tersely and plainly. The President had not stooped merely to tell them of their virtues and shut his eyes to their faults. He did not think the expressions were a bit too strong, either upon the pharmacist or upon the medical man. He asked them to accord a hearty



and beloved. He had reached a good ripe age, and of him it might be said, as of many other men who have lived and been true to themselves and their calling, "He has done his work well and earned his rest." The next, an even greater loss to us as a Conference, because of his younger age, and the promise there was in him of greater achievements for pharmacy, is our late Treasurer, Mr. R. H. Davies. I, with many others, made his acquaintance through this Conference, and I feel, as I am sure many of you do, that I have lost a personal friend with whom intimacy would have ripened year by year into stronger bonds.

Gentlemen, in conclusion, during the important business of the next two days I am your chairman and presiding officer, and in exercising the functions of that office, I will endeavour to secure a fair hearing for the many-sided opinions which in the discussions on the papers are sure to find expression; but I should be afraid of the position if I did not know that the honour of this Conference as a whole is as dear as personal honour to every member of it, and that in those discussions no member will withhold facts which he

vote of thanks to Mr. Martin for his admirable address. (Applause.)

Mr. G. C. DRUCE, in seconding the motion, said the President's address had covered a very wide area and raised many painful topics. To attempt to cover that area or deal with any of those points was not his duty. His was the pleasing duty of seconding the vote of thanks which he hoped they would heartily accord.

The vote of thanks was then accorded and acknowledged by the President.

Sir HENRY ACLAND then stated what he had omitted in his welcome—that he had intended to bring it to the knowledge of the Conference that the University had very wisely, within the last three or four years, established a special reader of materia medica, or pharmacy, or pharmacology—whichever they liked to call it. He thought, also, it would bring the cheers of the meeting to know that they had appointed as examiner Dr. Lauder Brunton. (Loud applause.)

Immediately on the conclusion of those proceedings, the

Mayor, the Master of Balliol, and Sir Henry Acland, together with most of the ladies and a large number of the members, left the hall, presumably on pleasure bent, and the serious business was at once entered upon by Mr. RANSOM reading the list of

DELEGATES

from the various Pharmaceutical Associations and Societies, as follows:—

Pharmaceutical Society of Great Britain.—Messrs. M. Cartighe (President), W. G. Cross (Vice-President), R. Hampson (Treasurer), Atkins, Bottic, Gostling, Grose, Hills, Martin, Martindale, Schacht, Southall, Young, the Editor, Sub-Editor, and Secretary.

North British Branch.—Messrs. J. L. Ewing (Chairman), Chas. Kerr (Vice-Chairman), Currie, Davidson, Gibson, Lunan, and Maben.

Pharmaceutical Society of Ireland.—Messrs. G. D. Beggs (Vice-President), Conyngham, and Wells, jun.

Aberdeen and North of Scotland Society of Chemists and Druggists.—Messrs. Johnston, Kay, and Paterson.

Brighton Association of Pharmacy.—Messrs. W. H. Gibson and W. W. Savage.

Leeds Chemists' Association.—Messrs. R. Reynolds and G. Ward.

Liverpool Chemists' Association.—Messrs. Conroy, Smith, Symes, and Buck.

London Chemists' Assistants' Association.—Messrs. Gane, Harrison, Jones, Parry, and Strother.

Sunderland Chemists' Association.—Messrs. Harrison and Ranken.

Manchester Pharmaceutical Association.—Messrs. Cooper, Kemp, and Johnstone.

Nottingham and Notts Chemists' Association.—Mr. C. A. Bolton.

Glasgow and West of Scotland Pharmaceutical Association.—Messrs. Currie and Kinnimont.

Midland Pharmaceutical Association.—Messrs. R. D. Gibbs, F. J. Gibson, Prosser, Alcock, Perry, A. Southall, C. Thompson, H. Hutton, H. W. Jones, J. Barclay, J. Liversedge, and C. F. Jarvis.

Western Chemists' Association (London)—Messrs. W. Martindale, J. H. Mathews, and R. H. Parker.

Bournemouth Chemists' Association.—Messrs. Bridge, Hardwick, Toone, Spinney, and Bilson.

Mr. NAYLOR read the annual

REPORT OF THE EXECUTIVE COMMITTEE,

as follows:—In presenting the thirty-first annual report your committee is glad to be able to state that general interest in the work of the Conference shows no sign of diminution. Increased membership is still a desideratum, for although the last two annual meetings have been exceptionally well attended, the number of enrolled members represents no marked increase.

With the view of bringing the Blue List up to date, it has been completely revised by a sub-committee appointed by your Executive. Several new subjects have been introduced, the majority of which are specially adapted for investigation by pharmacists, while others, which have been exhausted, or do not appear of sufficient importance, have been expunged. The form of the circular has also been subjected to some modification. Only one application for a money-grant in aid of research has been received during the year, the sum of 3*l*. having been granted to Mr. H. Bowden in furtherance of his investigation of *Hemidesmus indicus*. Mr. R. A. Cripps has been unable to continue his work on *ipecacuanha* during the year, for which grants have been previously made to him, but he hopes shortly to resume his examination of this drug. Mr. W. Elborne, B.A., who was last year the recipient of a grant, is also unable at the present time to supply a further instalment of his work on *coto-bark*.

The Conference has lost by death several valued members during the past year. Of these, Professor Bentley was probably the most widely known. He was one of the founders of the Conference, and filled the office of President for two consecutive years— at Nottingham in 1866 and at Dundee in 1867. His long association with pharmacy as a professor, and his devoted enthusiasm to botany, brought him into contact with distinguished men from all parts of the world.

His treatises relating to botany and materia medica have long been, and still are, justly valued. In the last annual report reference was made to the resignation of Mr. R. H. Davies as Hon. Treasurer of the Conference, owing to prolonged illness. In recognition of his services he was last year elected a Vice-President. To the deep regret of his numerous friends the illness terminated fatally, and in December last your committee had the melancholy duty of directing that a letter of condolence be sent to Mrs. Davies in her bereavement. Mr. Davies was a frequent contributor to these meetings, and his papers on various chemical subjects bespeak a mind imbued with the true spirit of science. Professor J. M. Maisch, of Philadelphia, an honorary member of the Conference, and the author of valuable pharmaceutical works, also died last autumn, shortly after receiving the Hanbury medal. For twenty-six years he acted as permanent secretary to the American Pharmaceutical Association. Lastly, we have to record the loss of Mr. W. D. Savage, of Brighton, a veteran pharmacist, and former Vice-President of the Conference, whose death took place only a few weeks ago. Through the decease of Mr. R. H. Davies a vacancy occurred in the vice-presidency, to fill which your committee elected Mr. J. H. Matthews, of London. Two honorary members have also been elected during the year—Professor Joseph P. Remington, of the Philadelphia College of Pharmacy, and Dr. Anton von Waldheim, President of the Gremium of Pharmacists of Vienna. Mr. Louis Siebold, F.I.C., F.C.S., was reappointed editor of the *Year-book*, and the manuscript of parts 1 to 4 inclusive is now in the hands of the printers. It is believed that the earlier publication of the volume, to which reference was made last year, has been appreciated by members generally.

The reception by the President was held in the Christ Church Hall last night. This and the *conversazione* which followed were largely attended, and much appreciated by members of the Conference and their friends. (Applause.)

REPORT OF THE TREASURER.

Mr. JOHN MOSS, as Treasurer, said he fully agreed with every word the Hon. Secretary had used with reference to his predecessor, the late Mr. R. H. Davies. He had known Mr. Davies personally for many years, having associated with him as a student, and afterwards as an examiner. As a painstaking man, a man of science, of great accuracy and minuteness in work, as one who went thoroughly over every subject on which he essayed to speak, he did not think the Conference had produced any superior. (Applause.)

Referring to his report as below, he said it was a matter for surprise that they were not more numerous as regards members, and they were apt to believe that did they possess more means of making better known the advantages which the Conference conferred upon pharmacists their number would represent, not, perhaps, 10 per cent. of the pharmacists of the United Kingdom, but 50 per cent.

Financial Statement for the Year ending June 30, 1894.

The Hon. Treasurer in Account with the British Pharmaceutical Conference.

	Dr.	£	s.	d.
1893.				
July 1.	To Assets forward from last year—Balance in hand			
	at Bank	34	10	7
	Cash in Secretary's hands	1	2	8
	Messrs. Churchill's Account	85	16	5
1894.				
June 30.	„ Sale of <i>Year-book</i> by Publishers	—	—	20 0 0
	„ Advertisements—1893 Volume	80	8	3
	„ 1892 „	1	14	0
	„ Members' Subscriptions—Amount received from July 1, 1893, to June 30, 1894	—	—	435 8 10
	„ Index Book—Sales by Publishers	—	—	—
	„ Secretary	0	7	6
	„ Liabilities on outstanding Account—			
	Messrs. McCorquodale & Co.	3	15	6
	Messrs. Butler & Tanner	1	18	7
		5	14	1
	„ Unofficial Formulary—Sales by Publishers	3	12	0
	„ Unused Cheques	0	7	2
	„ Sundries	0	15	0
		£	669	16 6

1894.	Cr.	£	s.	d.	£	s.	d.	
June 30.	By expenses connected with Year-book—							
	Printing, Binding, Publishing &c.	..	262	9	8			
	Postages and Distributing .. ..	..	24	12	11		
	Advertising and Publishers' Charges ..	..	22	3	7		
	Editor's Salary .. ..	..	150	0	0		
	Foreign Journals for Editor .. ..	..	5	17	6		
						465	3	8
	„ Unofficial Formulary—Advertising ..	..	0	5	0		
	„ Publisher's Commission .. ..	..	0	7	3		
						0	12	3
	„ Sundry Expenses—Assistant-Secretary at Nottingham .. ..	..	10	0	0		
	Copies of President's Address .. ..	..	0	15	0		
						10	15	0
	„ Assistant-Secretary's Salary from July 1, 1893, to June 30, 1894 .. ..	..	45	0	0		
	„ Rent of Office .. ..	..	10	0	0		
						55	0	0
	„ Blue List—Printing .. ..	..	3	15	6		
	„ Postage .. ..	..	2	11	8		
						6	7	2
	„ Postages	—			11	14	7
	„ Printing and Stationery	—			17	9	0
	„ Bank Charges, as per Bank-Book	—			1	4	4
	„ Petty Cash expended	—			5	19	5
	„ Liabilities of last year, since paid	—			3	4	6
	„ Outstanding Assets—Messrs. Churchill's Account	—			82	18	5
	„ Sundries	—			0	0	5
	„ Balance at Bank .. ..	..	0	10	9		
	„ Do. in Secretary's hands—Postage, 14s. 7d. ; Petty Cash, 2s. 5d. .. ..	..	0	17	0		
						1	7	9
	„ Grants for Research	—			8	0	0
						£ 669	16	6

THE BELL AND HILLS FUND.

1893.					£	s.	d.	£	s.	d.
July 1.	To Balance in hand	..	..	..	..	14	13	9		
	„ One Year's Dividend on Consols	..	..	..	..	9	14	5		
									24	8
	By Purchase of Books for Nottingham	..	..	..	..				9	7
										11
									£ 15	0
										3
	Assets—Cash Balance at Bank	..	£ 15	0	3					
	Consols	..	..	..	350	0	0			
	Examined and found correct	{	J. WILFORD,	}	Auditors.					
			C. CLAYTON.							

The CHAIRMAN formally moved the adoption of the Secretary's and Treasurer's reports, which Mr. UMNEY seconded, and the motion was adopted unanimously.

REPORT OF THE UNOFFICIAL FORMULARY COMMITTEE.

Mr. MARTINDALE read the following:—Since our last meeting the committee have, with the sanction of the Executive, produced a new issue of the Unofficial Formulary, a proof of which is now in my hands, and will be ready for sale next week. They have added four new formulæ—namely, *Collodium Stypticum*, *Extractum Belladonnæ Folii Alcoholicum*, *Liquor Bromo-chloral Compositus*, and *Syrupus Acidi Hydriodici*. Several alterations and corrections have been made, which further experience of the preparations had rendered necessary. These consist principally in lessening the acidity of some of the syrups, thereby rendering them more stable and palatable, and in an improved formula for *Collodium Belladonnæ*. The latter presented difficulties in the way of preparing it from a liquid extract sufficiently concentrated to be stable. They have overcome these by using a solid alcoholic extract of belladonna-leaf, which must be assayed at the time of preparing the collodion so as to obtain a uniform product.

Commenting upon the reports, the CHAIRMAN observed that Mr. Moss had referred to the natural falling off in the returns from the sale of the Unofficial Formulary just previous to its re-issue. During the next twelve months they would probably see a fair amount realised from the sale of the new edition. As had been previously remarked, the compilation of the Formulary was really a process of Pharmacopœia-making, as was evidenced by the last additions to the B.P.

THE CONFERENCE PAPERS.

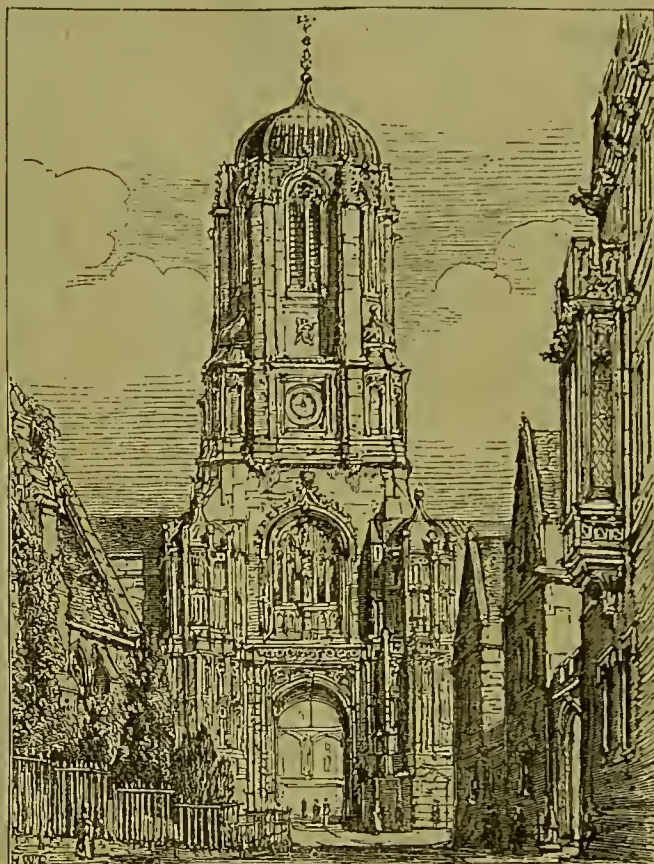
The first paper on the agenda was then taken, the President

calling upon Messrs. Farr and Wright, who proceeded to the platform. Mr. FARR read the first paper, and Mr. WRIGHT the second.

NOTE ON THE STABILITY OF THE ALKALOIDAL
TINCTURES.

By E. H. FARR and R. WRIGHT, Pharmaceutical Chemists.

The question of the stability, or otherwise, of galenical preparations like the tinctures is of considerable importance from a medical and pharmaceutical standpoint, because it is evident that in so far as such preparations are liable to undergo alteration in composition, either through the separating out of any of the principal constituents, or through changes taking place in the characters and properties of any of the active principles, by so much will the preparations themselves be rendered uncertain in strength and, con-



TOM TOWER, CHRIST CHURCH.

sequently, unreliable in effect. The question assumes an added importance on account of the present disposition of opinion in favour of standardised preparations, and still more so in view of the fact that it is more than probable that the publication of the forthcoming edition of the British Pharmacopœia may witness a considerable extension in the application of the principle of standardisation to preparations of potent drugs. Now, if it were proved impossible to keep a preparation, after being standardised, up to standard strength, this fact would in itself constitute a great, if not an insuperable, barrier in the way of carrying out any such system of standardisation as we have advocated for several years past. During the progress of our work on tinctures we therefore took the precaution to preserve specimens of each of the tinctures operated upon, intending, as soon as time and opportunity would allow, to turn our attention to the question as to whether or not those tinctures the active principles of which are capable of ready and accurate estimation suffered any diminution in strength when kept for a length of time. And it was also thought that inferentially the results of this inquiry might tend to throw light upon the same question in its application to other tinctures not brought under examination, or at any rate that they might not be without interest in their bearing upon the point.

All the tinctures examined have been kept for twelve months at least, the majority of them for a space of two or three years. The processes employed for the determination of

the alkaloids have been the same as those originally followed, and will be found published in the *Year-books* for 1890-93.

The results obtained prove that the strength of the alkaloidal tinctures, so far as can be judged from the estimation of their alkaloidal constituents, remains approximately the same for a considerable length of time, and it may fairly be assumed that when preserved under normal conditions, they remain constant in composition. The only instances in which any notable loss of alkaloid is apparent are in the case of the tinctures of cinchona and green hellebore, and it is doubtless due to the mechanical carrying down in solution of traces of alkaloid by the deposited resinous and extractive matter. The average loss in the most extreme case—that of the tincture of green hellebore—does not amount to 5 per cent.

Table showing Results of Estimations of Alkaloidal Tinctures.

Tincture	Date of first estimation	Percentage of alkaloids	Date of second estimation	Percentage of alkaloids
Aconite ..	1 Jan. 6, 1891	·054	March, 1894	·054
	2 Jan. 9, 1891	·050	Dec. 7, 1893	·043
	3 Jan. 9, 1891	·066	Dec. 8, 1893	·030
Average ..		·056		·054
Belladonna ..	1 Aug. 13, 1891	·024	March, 1894	·024
	2 Aug. 13, 1891	·026	March, 1894	·025
	3 Aug. 24, 1891	·039	Nov. 14, 1893	·039
	4 Aug. 24, 1891	·038	Nov. 14, 1893	·038
Average ..		·032		·032
Cinchona ..	1 March, 1893	1·29	April, 1894	1·27
	2 March 27, 1893	1·00	Feb. 22, 1894	·95
Average ..		1·14		1·11
Colchicum ..	1 Nov. 14, 1890	·095	April, 1894	·092
	2 Nov. 14, 1890	·058	April, 1894	·058
	3 Dec. 9, 1890	·079	Dec. 21, 1893	·080
	4 Dec. 9, 1890	·080	Dec. 19, 1893	·076
Average ..		·078		·077
Conium ..	1 Oct. 6, 1890	·158	March, 1894	·154
	2 Oct. 16, 1890	·030	Dec. 15, 1893	·090
	3 Oct. 16, 1890	·098	Dec. 15, 1893	·096
Average ..		·115		·113
Gelsemium ..	1 Oct. 22, 1891	·020	April, 1894	·019
	2 Oct. 16, 1891	·047	Nov. 30, 1893	·043
	3 Oct. 16, 1891	·063	Dec. 5, 1893	·066
Average ..		·045		·044
Hyoscyamus ..	1 July 23, 1891	·012	March, 1894	·012
	2 July 23, 1891	·011	March, 1894	·011
	3 March 20, 1891	·013	Nov. 14, 1893	·0125
	4 March 20, 1891	·0135	Nov. 17, 1893	·013
Average ..		·0124		·0121
Jaborandi ..	1 Feb. 14, 1891	·112	March, 1894	·106
	2 Feb. 14, 1891	·080	March, 1894	·081
	3 Feb. 16, 1891	·134	Nov. 28, 1893	·130
	4 Feb. 16, 1891	·140	Nov. 28, 1893	·135
Average ..		·116		·113
Lobelia ..	1 July, 1892	·028	April, 1894	·029
	2 July 22, 1892	·044	Nov. 21, 1893	·044
	3 July 22, 1892	·042	Nov. 22, 1893	·041
Average ..		·038		·039
Stramonium ..	1 Sept., 1891	·032	March, 1894	·032
	2 " "	·030	" "	·030
	3 " "	·027	" "	·023
	4 " "	·030	" "	·029
Average ..		·030		·030
Veratrum viride ..	1 July, 1892	·184		·176
	2 July, 1892	·212		·192
	3 Dec. 15, 1891	·140		·133
	4 Dec. 15, 1891	·153		·157
Average ..		·173		·164

GRAVIMETRIC AND VOLUMETRIC METHODS FOR THE DETERMINATION OF THE ALKALOIDS IN ALKALOIDAL TINCTURES.

(Abstract.)

By E. H. FARR and R. WRIGHT, Pharmaceutical Chemists.

The authors in this note referred to the work done by Lyons, Lloyd, Allen, and Cripps in the direction of volumetric estimations of the alkaloids in tinctures, &c., and then proceeded to the work of Caspari, who, in a note published in the *American Pharmaceutical Review*, November, 1892, maintained that volumetric methods of estimation were superior to gravimetric ones, and that the alkaloids obtained by the latter invariably contained from 10 to 20 per cent. of impurity. A final reference was made to a paper read before the American Pharmaceutical Association last year by Messrs. Caspari and Dohme, entitled "The Value of Titration with Volumetric-acid Solution as a Means of Assaying Drugs and Galenical Preparations," in which those gentlemen claim to show that the determination of alkaloids

in galenical preparations may be effected more accurately by titration than by the usual plan of weighing.

As Messrs. Farr and Wright in their researches on tinctures had employed gravimetric processes of assay almost exclusively, they considered it necessary to test the conclusions of Messrs. Caspari and Dohme. With that object in view each of the alkaloidal tinctures previously submitted to examination was prepared in sufficient quantity and estimated as follows:—

1. Two gravimetric estimations by the methods published in their notes on tincture menstrua.

2. The crude alkaloid was extracted from the evaporated tincture by shaking with chloroform after addition of alkali; it was then purified by extraction from the chloroform with several portions of acidulated water, and finally recovered by addition of alkali and shaking with chloroform. The chloroformic solution thus obtained was washed with distilled water to remove any traces of adhering alkali, and then used for the direct titration of the alkaloids with $\frac{N}{20}$ HCl, methyl-orange, iodeosin, and phloxin being used as

indicators in the separate experiments. In using methyl-orange a little distilled water is added along with 2 drops of the indicator, but with iodeosin and phloxin a single drop of a $\frac{1}{1000}$ solution is shaken up with the chloroformic solution until the latter has become distinctly coloured. The indication of the end-reaction is in the case of methyl orange the appearance of a pink colour in the upper layer, whilst in the case where iodeosin and phloxin are used the reaction is complete when the colour disappears from the chloroform.

3. The alkaloid obtained by the usual gravimetric method was dissolved in a known excess of standard acid and titrated back with standard alkali in a white porcelain dish, using methyl-orange and Brazil wood as indicators, supplemented by iodeosin and phloxin where the volume of tincture permitted. In this case the indication of the end of the reaction when methyl-orange is used is the disappearance of the pink tint; and with Brazil wood the production of a purple colour. In the employment of iodeosin and phloxin as indicators, except in direct titration, we have followed the plan recommended by Cripps of adding to the acid alkaloidal solution sufficient neutral ether to form a distinct supernatant layer after being shaken with the solution. At the end of the reaction the aqueous layer becomes pink.

The following were the test-solutions used in the work:

Standard $\frac{N}{20}$ hydrochloric acid and standard $\frac{N}{100}$ barium hydrate, which is recommended as giving a quicker end-reaction than potassium or sodium hydrate. The strength of the latter must be taken at the commencement of each experiment. The indicators used were as follows:—

Methyl-orange: A solution of the strength of 1 gr. per fl. oz. in equal parts of S.V.R. and water.

Brazil wood: The U.S.P. test-solution, made by boiling 50 grammes finely-cut Brazil wood with 100 c.c. water for half an hour, replacing the water evaporated from time to time; the liquor is then cooled, strained, and made up to 100 c.c., and 25 c.c. alcohol added, then the whole filtered.

Iodeosin and Phloxin: An aqueous solution containing 1 part in 1,000 fluid parts.

The equivalents used were those of the principal alkaloid in each case, except cinchona, nux vomica, and veratrum, where the equivalents are calculated by taking the mean weights of the chief alkaloids.

The results obtained are embodied in the table given below.

Notes on the Results.—The authors conclude from their work that volumetric methods are useless in the case of the alkaloids of aconite, the large proportion of aconine (equivalent ·02715) making the readings much too high. Also in the case of preparations of colchicum, on account of the absence of basic properties in the alkaloids colchicine and colchicine.

For gelsemine they have used the formula $C_{22}H_{25}N_2O_3$, proposed by L. Spiegel, instead of $C_{21}H_{23}N_2O_4$, as proposed by Gerrard, their results being more in accord with the former.

In the titration of the cinchona alkaloids the results obtained were not satisfactory, the end-reactions being extremely difficult to observe, and the authors condemn the use of volumetric estimations in the case of these alkaloids.

On the other hand, they consider that in the case of the alkaloids of belladonna, henbane, stramonium, conium, jaborandi, nux vomica, lobelia, and opium, the application of the volumetric methods may be made without disadvantage, the results obtained being almost equally reliable and somewhat more expeditious than by gravimetric processes.

Table showing Comparative Results obtained in Estimating Tinctures—(a) Gravimetrically, (b) Volumetrically.

Tincture		Alkaloid by Weight. Mean of Two Estimations	Alkaloid Indicated by Direct Titration of Chloroformic Solution with $\frac{\text{HCl}}{20}$			Alkaloid Indicated by Dissolving Crude Alkaloid in Excess $\frac{\text{HCl}}{20}$ and Titrating back with $\frac{\text{Na}_2\text{HO}}{100}$			
			Methyl-orange	Iodeosin	Phloxin	Methyl-orange	Brazil Wood	Iodeosin	Phloxin
Aconite ..	1	013	—	018	019	020	—	018	018
	2	014	019	019	022	022	022	022	025
Belladonna ..	1	022	—	022	022	022	021	020	020
	2	031	033	032	034	031	032	032	030
Cinchona ..	1	074	—	144	145	078	—	072	071
	2	087	093	087	086	—	052	—	—
Conium ..	1	047	—	042	042	042	042	042	042
	2	019	017	—	—	—	—	016	015
(Hydrochlorate)									
Colchicum..	1	024	—	—	—	005	—	—	005
	2	028	—	—	—	006	—	005	—
Gelsemium	1	019	—	018	019	019	017	018	018
	2	024	024	020	024	027	024	024	024
Hyoscyamus	1	005	—	005	005	005	005	005	005
	2	009	010	—	—	0085	008	008	0086
Jaborandi ..	1	020	—	018	018	017	017	017	017
	2	018	018	017	017	018	018	017	018
Lobelia ..	1	039	—	009	008	008	008	008	008
	2	009	008	009	009	007	008	—	—
Nux Vomica	1	043	—	044	043	042	041	—	—
	2	066	066	—	—	066	036	035	—
Opium* ..	1	100	—	—	—	095	094	095	094
	2	100	—	—	—	099	099	097	099
Stramonium	1	011	—	011	011	011	011	010	010
	2	017	017	—	—	017	017	016	—
Veratrum Viride ..	1	023	—	023	022	019	020	019	—
	2	027	027	020	023	023	021	024	019

* For the opium estimations, a solution of anhydrous morphia obtained in estimating the tincture by the B.P. process was employed. This was dissolved in excess of $\frac{\text{N HCl}}{20}$.

The authors give a general process for estimating the alkaloids in tinctures by titration with standard acid. From 25 to 50 c.c. of the tincture (or in the case of hyoscyamus 100 c.c.) to be estimated is evaporated over the water-bath to expel spirit, a little water being added if necessary. The residual extract is filtered into a separator, and the dish and filter washed. The acid liquid is next shaken with two successive small quantities of chloroform, and the latter drawn off. The separated chloroform is washed with a little acidulated water, and the latter, after separation, added to the contents of the separator, which are then made alkaline, and the alkaloids taken out by shaking with three successive small quantities of chloroform. The chloroformic solutions are drawn off into a cylinder provided with a good cork, washed with distilled water until free from adhering alkali. A drop of $\frac{1}{1000}$ iodeosin or phloxin is then added, and the whole shaken until the chloroform is distinctly tinted; after which $\frac{\text{HCl}}{20}$ is gradually run in from a burette

graduated in tenths of a c.c., the mixture being shaken after each addition of acid until the colour is discharged from the chloroform. The reading is then taken, and the proportion of alkaloid calculated from the proper equivalent.

The authors in conclusion, whilst admitting that the application of volumetric methods of estimation to the alkaloids obtained from tinctures is useful as affording a check on the results obtained by gravimetric methods, maintain that the results yielded by the latter are, on the whole, the more reliable of the two, and that gravimetric processes are more suitable for use by the average practical pharmacist.

The PRESIDENT said the papers were of very great value, but he would suggest that the authors would have done well to have prepared diagrams of the tables showing the results of their work.

Mr. WRIGHT objected that in previous years he had spent hours and hours in preparing such diagrams, and had found, to his surprise, that no one apparently made any use of them. Consequently, he did not repeat the process.

The PRESIDENT suggested that hours were not required to prepare the diagrams. Laboratory-porters could make them out in quite a short time.

Mr. UMNEY observed that there were three chief points in the consideration of the papers. First, that it was impossible to adequately discuss them, since they covered so vast a field. He could sympathise with Mr. Wright about the tables, which, though they would have been of some service, would scarcely have repaid him for the immense labour they would have entailed. Not only the Conference and British pharmacists, but pharmacists throughout the world, were very much indebted to Messrs. Farr and Wright for clearing up those matters. For years pharmacists had been wanting to know what they were about. Tinctures of belladonna, hyoscyamus, and so on had been in constant use, with only vague ideas as to their actual value. It had not been known if they were uniform in strength or could be investigated as to potency. Well, now they were learning something about these questions, as the outcome of the very large amount of work which had been carried out by the authors. Only persons who had been engaged in laboratory-work could appreciate the wide extent covered by the experiments described. (Hear, hear.) These were additions to many other papers on tinctures contributed by the authors, and pharmacists had got accustomed to look to them for a long time past for information on the subject. He hoped Messrs. Farr and Wright would continue their work in the same direction. It was satisfactory to find that some important tinctures could be standardised. He did hope that when the Pharmacopoeia was issued in a new edition they might see those tinctures introduced in a standardised form, and thus have something a little in advance of the pharmacy of the past century.

Mr. MARTINDALE supported the testimonial of Mr. Umney, and thought the papers on the keeping-properties of the tinctures were especially interesting. There were, he believed, two tinctures which apparently did lose a notable amount of their properties by keeping. One was conium—

Mr. WRIGHT: No! cinchona and veratrum viride. In conium the average amount of alkaloid in the fresh tincture was 0.115, and after three years it was 0.113, a variation amounting to only a decimal point or two in the third place. In the case of cinchona, the first sample did not lose anything, the second lost about 5 per cent. In the case of veratrum there was also a loss of about 5 per cent., due to precipitation.

Mr. MARTINDALE continued that he was about to suggest the preparation of acetic tinctures of some of the drugs which lost in strength. In the case of conium it had seemed that the alkaloid might be fixed in this way, and the same might perhaps be true with veratrum viride. He agreed with the conclusion that gravimetric methods were preferable to volumetric. Mr. Umney had once said that he preferred to deal with something he could see and weigh; he (the speaker) would add also something one could crystallise either directly when separated from the solvent or in the form of a salt. Such a *modus procedendi* might be applied to jaborandi tincture, as he had suggested to Mr. Wright on the previous evening. This drug contained a liquid alkaloid, but the crystalline nitrate was so insoluble in alcohol that it would be available as a means of separating and estimating the value of the chief constituent of the drug.

Mr. GROVES wished to know the exact conditions under which the tinctures were kept. (Hear, hear.) With regard to the estimation of the tinctures, many drugs consisted of more than one alkaloid, and these alkaloids were of varying strength and value. For this reason the mere estimation of the total amount of alkaloid did not yield a correct indication of the activity of a preparation. (Hear, hear.) He would urge, therefore, that although these data were useful they must not be relied upon too implicitly. (Hear, hear.)

Mr. PARKER asked if the authors had made experiments on the keeping-properties and constancy of colchicum wine?

Mr. MOSS was rather of the President's view about the tables. He was sure that though Mr. Wright told them his previous diagrams were not referred to by members, yet those members were affected by them. Mr. Martindale had drawn attention to the importance of the constancy manifested by the tinctures during keeping; one could not help being struck by that, even though, perhaps, the points referred to by Mr. Groves were not included. Another point presented itself in the case of tincture of colchicum, as dealt with in the first paper; the initial strength of specimen No. 1 was about double that of No. 2. Now, although these preparations remained constant, the difference in the strength showed the great variation possible in the drugs used. Probably they were collected from different sources. He wished to add his quota of thanks to the authors for the infinite pains they had taken.

Mr. ALCOCK asked whether the tinctures when re-examined were clear and bright. It was well known that many of the tinctures after being made deposited. It was an interesting question what the sediment was, and whether it contained any of the active principle of the drug.

Dr. SYMES observed that while Messrs. Farr and Wright had shown that the volumetric method had no advantages over the gravimetric, yet the results indicated that the former mode of estimation had value as a check upon the latter.

Mr. LLOYD WILLIAMS pointed out that, with regard to the comparative value of estimation by the volumetric or gravimetric processes, one was unable to take the factors for the volumetric methods given by the text-books, because the composition of the principles was not accurately known. No absolute certainty could, therefore, be asserted for the method. For his own part, he preferred the gravimetric process, not only because the results were tangible, but because the principles could be obtained comparatively pure. The great difficulty in taking volumetric results was the variation of the factors given, unless the standard were tested against a pure salt or base of known composition.

Mr. CONROY was very pleased to find that after all the work the authors had done the tinctures were found to keep of practically full strength. He would like to suggest, if the tinctures were examined again, that it would be advantageous to test the deposits in cinchona and veratrum viride. Pharmacists would then be able to decide whether the deficiency in strength after keeping was due to deposition or decomposition.

Mr. GERRARD said that he was much pleased and interested with the excellent communication to which they had just listened, and was pleased to find that their old friends the tinctures maintained their quality on keeping. It gave them confidence in such preparations, and the medical profession as well. No doubt they had some advantage over pure alkaloidal preparations in that they contained the natural properties of the drug in a state of combination. He was inclined to consider that, with regard to the comparative value of gravimetric and volumetric methods, the volumetric processes were more advantageous, inasmuch as in working on a small amount of material, such as the authors had used—25 c.c. to 50 c.c.—there was considerable difficulty in obtaining a pure residue to work upon, and, unless it was titrated side by side with a pure base, there was sure to be some foreign substance in the residue. If the residue did contain any foreign body, and this was dissolved up and neutralised with acid, the portion neutralised must be alkaloidal, and consequently the result would be so much more accurate. He would like to know whether Messrs. Farr and Wright had weighed or measured their tinctures, as possibly a difference here might make considerable difference in the result. With regard to the difference in figures obtained by the authors in working on gelsemium from those obtained by himself, he pointed out that he himself had worked on much larger amounts—as much as a hundred-weight—of the raw material, and no doubt some of the difference in results was due to this.

The PRESIDENT, in closing the discussion, wished to add his quota of praise to that of the members present, and commented on the very excellent work which the authors had done. He thought that the first paper in particular was very valuable, and would like to know if the authors had made their tinctures with the menstruum of the Pharmacopœia. He pointed out that in using the volumetric pro-

cesses for cinchona the authors had in one case obtained double the amount of alkaloid which had been previously determined, and thought there must be some error there. He thought it would have been a great help to the members if the authors had prepared tables of their results, so that the members might have followed the paper better. He pointed out that it was not easy to fix what he might term the clinical value of a tincture merely on the base of such figures as these, inasmuch as there was often more than one alkaloid present, and one of these might be inert. The estimation of the alkaloidal value of a tincture was of great value, but more so to the pharmacist than to the physician.

Mr. WRIGHT, in replying, said that he agreed with the President's remarks about the difficulty of fixing the clinical value of a tincture on the base of its alkaloidal value. All that the work put forward was that a definite amount was yielded by a tincture, and if a fixed standard was made it would then have some clinical value in showing that that standard was not departed from. With reference to the comparative value of volumetric and gravimetric methods, he did not disagree with the remarks of Mr. Gerrard with regard to some tinctures, gelsemium in particular. Working on gelsemium they had obtained some very peculiar results. Using ether as a solvent they had obtained from a residue an alkaloid agreeing with Mr. Gerrard's figures, and then on using more solvent they obtained a further yield which gave totally different results. This showed there were two alkaloids present, one having a formula agreeing with Gerrard's, and one with a higher molecular weight. Mr. Martindale had suggested the addition of acetic acid to tincture of conium, with a view of fixing the alkaloid and rendering the preparation more stable; but he (Mr. Wright) pointed out that the alkaloid did not exist free in the plant, but in combination with an organic acid, and he considered the tincture one of the most stable in the Pharmacopœia. No special care had been used in storing the tinctures: they had been kept as is customary in business. In reply to Mr. Parker, he had lately experimented at the request of a medical man on the relative strengths of tincture and wine of colchicum, and had been surprised to find the tincture slightly the stronger. No doubt this was due to the tannin in the wine fixing some of the alkaloid, and so retarding solution. He was glad to notice that his diagrams of last year had made more impression on those at a distance than on those present at the meeting. (Laughter.) Gravimetric methods were, as a rule, more reliable, he thought, with this precaution—that in one or two cases there is extreme difficulty in getting rid of resinous matter. This was particularly the case in regard to the tinctures of gelsemium, veratrum, and lobelia, and in these cases he thought that probably the volumetric processes were the safer. Gravimetric processes had the advantage mentioned by Mr. Umney—that when you saw the residue you knew you had it; but they had the disadvantage that when weighing a residue everything was weighed, whether alkaloid or not. He had condemned in particular the volumetric process for cinchona because results varied so much, and it was often the case that where colouring-matter was present and an indicator used it is not possible to get a definite indication as to the end-reaction, and so inaccurate results followed. He thanked the members for their kind reception of the papers. (Loud applause.)

THE QUALITIES OF A TYPICAL DENTIFRICE.

(Abstract.)

By ARTHUR TURNER, F.C.S., L.D.S., Dental Surgeon to the Bucks County Infirmary.

A typical dentifrice should have a mechanical base capable of cleansing the surface of the tooth, without the possibility of doing any chemical or mechanical damage to its structure.

The enamel, though the hardest and densest tissue in the body, was not impregnable, and the edge of the enamel cap was bevelled off, so to speak, becoming thinner as the gum was approached. At the neck of the tooth there was often no enamel at all, and consequently, the dentifrice came into contact with a more vulnerable structure—the cementum of the surface of the root.

Pumice, the author contended, must be harmful, as it scratches the surface; charcoal is objectionable owing to its

colour. Chalk is the best base, and its quality may be roughly tested by trying it on silver: if the metallic surface be cut, a softer base must be sought. *Creta preparata* is to be preferred to the precipitated chalk by virtue of its lightness. Every crystal of the *creta precipitata* has been thrown down from a condition of semi-suspension in a denser fluid by means of its own greater density. It may be contended that the precipitated form is not entirely or exclusively crystalline, but it will be admitted that it is composed largely of crystals. The prepared chalk must also be free from silica.

A small proportion of bicarbonate of soda is desirable in a dentifrice to counteract acidity in the fluids of the mouth. A very small quantity is sufficient, as the saliva is itself alkaline. As an antiseptic, oil of cinnamon is better than carbolic acid or eucalyptus, being pleasant and an efficient germ-killer. The typical dentifrice would not contain an astringent, such being unpleasant. As to colour, only harmless and neutral tints should be selected. In putting up the dentifrice precautions should be taken to prevent the dipping of the wet brush into the powder. Wide-mouthed bottles with sprinklers are good. Directions should urge rinsing the mouth with water after using the powder, and the use of a soft brush. Warm water should be used in winter, especially by children, and if the dentifrice can be used only once a day, bed-time is better than morning.

Mr. GROVES (who had taken the chair in the absence of Mr. Martin) thanked Mr. Turner for his paper. It was a useful one, as the condition of the teeth could not be too closely looked after with regard to the process of mastication and the health of the individual. He did not think the paper called for much criticism, although he noticed one phrase which he could not quite accept, and that was that the use of astringents should be avoided simply because they were unpleasant. He did not consider that should be considered, if the utility of the dentifrice would be enhanced by an astringent. (Hear, hear.)

Mr. JOHN MOSS noticed that the author of the paper suggested that a test should be applied to discover if silica were present in the powder, and that silica in every form should be excluded. He did not know if Mr. Turner had in his mind the exclusion of pumice-powder. Some of the infusorial earths could be had sufficiently fine not to scratch silver plate, as referred to by Mr. Turner, but only to produce a polish.

Mr. CHARLES UMNEY said the author had stated, in reference to precipitated chalk, that it had been thrown down from a condition of some suspension. If it were prepared correctly, this was not so; it was obtained from two solutions, and it was only a question of carrying those solutions to very great dilution to get a precipitated chalk in almost impalpable powder. There was as much difference between varieties of precipitated chalk in trade as between shoddy and broadcloth. (Hear, hear.) If precipitated chalk were properly made, he thought they should have something that might be suitable for the teeth.

Mr. MARTINDALE noticed that cinnamon oil had been mentioned as a flavouring. Was it not possible to combine essential oils with the alkaline mixture, so that in keeping the flavour would not be lost, as in the case of oil of cinnamon?

Mr. TURNER, replying, said with reference to the use of astringents that in certain cases an astringent was required—in fact, almost necessary. His view was that it was not necessary in the typical powder. As to silica, the question was, could it be produced in such a finely-divided condition as only to polish and not to scratch? If it could, he saw no objection to its use. By a condition of semi-suspension he meant that at the moment that precipitated chalk was formed in the solution—just after it had passed out of the latent condition—it certainly was not thrown to the bottom immediately it was formed. It began to fall immediately in contradistinction to the prepared chalk, which is suspended long enough to be carried away by the water. He thought a great deal of harm was done by gritty powders. Mr. Martindale was asking if they could not have something that could bite the teeth. The use of pumice-stone in powder was harmful; and if cinnamon oil were used in flavouring, the powder should be at any rate moderately

freshly prepared, as, of course, cinnamon was more or less volatile.

After luncheon the President was early in the chair, and without waiting for the large proportion of the members still engaged at lunch, set the papers going again in the presence of an audience of less than a score.

A NEW AND MORE ECONOMICAL PROCESS FOR EXT. NUCIS VOMICÆ.

(Abstract.)

By E. W. LUCAS, F.C.S.

In this paper the author briefly discusses the proposal to replace the present inconveniently thin extract of *nux vomica* by a dry extract. This at first sight appears a most desirable change, as the existing extract quickly increases in alkaloidal strength owing to loss of moisture by evaporation. It is, however, shown that it is by no means easy except by the aid of a special drying-room or oven, to obtain a perfectly dry extract, and that, even when so obtained, it is with difficulty preserved in a powdery condition.

The author, therefore, suggests the use of acidulated chloroform-water instead of diluted spirit as a menstruum, the former dissolving more solid matter, while leaving the oil behind. On evaporation a firm extract is obtained, which is scarcely susceptible to loss, owing to the presence of a small quantity of glycerine in the finished product, while it is, at the same time, much less costly than the official process.

The PRESIDENT having invited discussion,

Mr. NAYLOR said the tendency appeared to be towards the standardisation of preparations. He did not see any particular advantage in that matter suggested by Mr. Lucas, although, of course, he had not tried it, and therefore was not prepared to state how it compared with other methods. He had been accustomed, in preparing a dry extract, to use an ordinary extract, to dry that carefully, and make up with sugar of milk. He had not found any difficulty in making such a preparation. He would be disposed to think—though Mr. Lucas would correct him if he were wrong—that by the ordinary methods of obtaining the spirituous extract it would contain more extractive than if the solvent were dilute acetic acid. He thought it important that they should bear in mind that they were aiming at producing a galenical preparation, and not merely to get out the alkaloid in its crude condition. Unless this method had some decided advantage over the usual method, he did not see why it should be adopted in preference to alcohol. He was, however, in favour of a powdered extract, because they did know that an extract standardised to-day might not be of the same strength after a week's time.

Mr. MOSS, being invited to make some observations, said he had not heard the whole of the paper, but his own notions were in accordance with the author's. The present extract was much too thin, and possibly, instead of being standardised to 15 per cent., the strength might be raised to 20 per cent. It was necessary, in order to preserve the degree of strength obtained, to add some innocent material after the extract was dried.

Mr. LLOYD-WILLIAMS asked if Mr. Lucas had made comparative experiments with an identical sample of *nux vomica*, using his proposed menstruum in one case, and in the other the ordinary spirituous menstruum of the Pharmacopœia, and if a comparative estimation of alkaloids obtained by these respective methods had been made.

Another Member asked what was the advantage of using chloroform-water instead of ordinary or distilled water.

Mr. BURNETT inquired if any experiments had been made with reference to the preparation of a tincture from the extract. Was the aqueous extract as readily soluble in spirit as the pharmacopœial preparation? Chloroform-water, he supposed, was used as a preservative—a property which it had been shown in many experiments to possess in a marked degree.

Mr. RANSOM raised the question of the differences in working with several specimens. One might find one specimen of *nux vomica* which yielded a suitable extract, but from another the extract would be too hard or too soft. At the present time the *modus procedendi* adopted consisted in mixing several samples of the drug. He would suggest that if a

powdered extract were made, some sugar of milk or other diluent used should be added to the extract during the process of drying, owing to the difficulties presented by its hygroscopic character.

The PRESIDENT, briefly reviewing the history of the standardised extract of *nux vomica*, quoted from a paper he had written on the subject, in which he gave an analysis of a number of specimens, and also estimated the moisture in them. The results showed how unstable the preparation was, moisture varying from 13 to 19 per cent. A weak point in the process was that the standardisation was according to the total alkaloids, and the relative proportion of strychnine was hardly the same in any two samples. Again, he did not know what the experience of others was, but for himself he could not redissolve an extract in alcohol which would keep as well as the tincture made from the drug itself. The old tincture was a far superior preparation to that made by dissolving the extract. Acetic acid was undoubtedly one of the best solvents for alkaloids, and one of the best preservatives. In the future, this acid would claim an important part in galenical preparations which contained alkaloids. He did not think it desirable to introduce glycerine into extracts used in making pills. If a physician were to prescribe several extracts in pill-form containing glycerine, he was afraid the pharmacist would find such pills returned by the patient. As regarded dry extracts, it would be remembered that in an earlier edition of the U.S.P. there was a series of preparations, consisting practically of dry extracts mixed with sugar of milk, and called *abstracts*. After a year's experience these abstracts were all abandoned, and that fact, he thought, was rather against the use of them. Before the next Pharmacopœia was published he would like to see a perfect process, from a pharmaceutical point of view, for the preparation of extract of *nux vomica*.

Mr. LUCAS replied that with regard to the advantage of dilute acetic acid it was much cheaper than alcohol, of which a good deal had to be used and a good deal was lost in maceration and during recovery. Of course, methylated spirit of the old kind might be used, but unless one was working on the large scale, Government would scarcely allow an opportunity of using it. Another point was that by using water there was a good deal more extractive. If a comparatively strong spirit were used the extractive was very small. Again, water did not extract the oil; in the B.P. process the oil was nearly all extracted, which was not desirable in its use for pills. He had operated on three different kinds of *nux vomica*, one of which yielded a good deal and another very little extractive. He believed that most people who made more than a few ounces would find great difficulty in making a solid extract. Chloroform-water was used to keep the percolate, because in warm weather a dilute acetic-acid percolate changed. He did not quite believe in dry extracts. The U.S.P. abstracts were found to go solid after a time. If any powder was added to the evaporated extracts, he would suggest powdered althæa as better than sugar of milk as a vehicle.

NOTE ON STRYCHNOS IGNATIA.

(Abstract.)

By F. RANSOM.

The seeds of this plant are well known to contain strychnine and brucine, and it has usually been stated in text-books that the former is present to a larger extent than in *nux vomica*.

Three specimens of the finely-powdered seed of *Strychnos Ignatia* were estimated for total alkaloid by the method introduced and employed by Dunstan and Short in their investigation of *nux vomica*. The following results were obtained:—(1) 2.22 per cent. strychnine and brucine; (2) 1.72 per cent. strychnine and brucine; (3) 3.01 per cent. strychnine and brucine.

This would indicate that the average percentage of total alkaloid is less, and the variation greater, than in *nux vomica*. The percentage found by Dunstan and Short in seven specimens of the latter varied from 2.74 to 3.9, the average being 3.29.

Two alkaloidal residues from *ignatia* were further examined by Dunstan and Short's method for the separation of the alkaloids by ferrocyanide of potassium:—(a)

contained 49 per cent. strychnine, 51 per cent. brucine; (b) contained 54.9 per cent. strychnine, 45.1 per cent. brucine. A sample of alcoholic extract was also examined, and found to contain 9.6 per cent. of total alkaloid, 46 per cent. of which consisted of strychnine and 54 per cent. of brucine.

It appears from the above results that although *ignatia* may contain a somewhat larger proportion of strychnine compared with brucine than *nux vomica*, the percentage in the seed is more variable.

The glucoside loganin discovered by Dunstan and Short in *nux vomica* appears also to be present in *ignatia*. The extract was boiled with ether, and when evaporated the ethereal residue, warmed with concentrated sulphuric acid, exhibited the dark-purple coloration characteristic of the glucoside.

Mr. C. UMNEY said he thought the great scarcity of *ignatia*-seeds and the superabundance of *nux vomica* would prevent its use in place of the latter to any very large extent. *Ignatia* was used somewhat on the Continent, but it rarely came into the English market.

Mr. E. M. HOLMES remarked that the variation in the amount of alkaloid was no doubt due to the variation in age of the seeds, the unripe seeds giving the smaller yield.

The PRESIDENT said special thanks were due to Mr. Ransom for his paper, inasmuch as he had managed to prepare it in spite of his arduous secretarial duties.

REMARKS ON GNETUM.

(Abstract.)

By W. ELBORNE, B.A. Cantab., Demonstrator on Materia Medica and Pharmacy, University College, London.

Gnetum, L., is a genus of Gymnosperms, giving its name to the natural order Gnetaceæ, and the species are trees or climbing shrubs, natives of Asia and America. The pharmaceutical interest of *Gnetum* is that it possesses internally the remarkable ringed structure characteristic of the natural order Menispermaceæ, and consequently is not unlike "*pareira brava*."

The structure of the wood of Menispermaceæ differs from that of other dicotyledons in that the vascular bundles of a young branch (which in most dicotyledons unite and form concentric rings of wood and liber) generally remain distinct in Menispermaceæ, and are separated by broad radial masses of cellular tissue, corresponding to the medullary rays of ordinary wood. After some time these original wood fascicles cease growing, and in the cortical cellular tissue exterior to the liber originates a second circle of bundles, similar to the first formed, excepting in the absence of spiral vessels. After these bundles have attained full development, they in turn cease to grow, and a third circle forms in the cellular tissue of the bark, and so on.

Another point of interest not observed in the text-books is that while "*Abutua*" and "*Butua*" are popular Brazilian terms for *pareira brava* (*Chondrodendron*, Ruiz et Pavon) and *Abuta*, Aubl., likewise an allied genus (Menispermaceæ), yet the genus *Abutua*, Lour., is synonymous with *Gnetum*, L.

The PRESIDENT having invited discussion,

Mr. E. M. HOLMES said that the similarity between the stems of *gnetum* and *pareira* was remarkable. *Gnetum* was not met with in commerce, but it was possible it might occur. Nothing was known of the medicinal properties of the genus *Gnetum*. He wished to ask whether in examining the stem the author had found any marked point whereby it might be distinguished easily from *pareira*. He would remark that the greater part of the commercial *pareiras* was stem and not root.

Mr. MOSS said that some time ago he had made a microscopical examination of the stem and root of *pareira*, and had published his results with diagrams. It seemed to him that the stem of *gnetum* was much larger than that of *chondrodendron*, and the cortical portion more developed and of a browner tint, and the fibro-vascular bundles more largely developed. He asked if Mr. Elborne had made a pharmaceutical examination of the stem. He (the speaker) had made extracts of both stem and root of the *chondrodendron*, with a view to an examination, but the microscopical

examination was so tedious that he had not made much progress, but would be pleased to give samples to any who cared to take up the work.

Mr. REYNOLDS remarked that intending investigators of rare or unknown drugs could obtain much valuable assistance from the Imperial Institute. Sir F. Abel was always willing to give all aid in his power.

Mr. BURNETT said it was remarkable that menispermaceous stems possessed bordered pits, and he was not, therefore, surprised to find gnetum resemble pareira.

Mr. ELBORNE, in reply, said that he had merely introduced the subject with a view of explaining a possible source of some of the false pareiras. The stem of gnetum might be distinguished from pareira by noticing the numerous fibres on the periphery of each rag of wood. The bark was not always largely developed—that depended on the source of the plant. It was well known to botanists that plants of the order Magnoliaceæ possessed a structure similar to that of the Coniferæ. Drymys showed the pits particularly well. The stem of cocculus indicus was also liable to be confounded with that of chondrodendron, as the specimens on the table would show.

THE RECOVERY OF RESIDUAL TINCTURES FROM MARCS

By R. H. PARKER, F.C.S.

The best method for recovering the residual tincture contained in a marc will depend chiefly upon the quantity under operation and the kind of apparatus available. I propose to consider the question as though preparing from 1 to 4 pints of tinctures, &c., with such apparatus as may be found in any pharmacy. Two methods are available for the purpose in view: pressure and displacement by water; distillation being applicable to larger operations only.

Pressure.—This process is simple and expeditious, but the use of the ordinary tincture-press leaves much to be desired. The best results are obtained when the quantity of marc reaches the maximum capacity of the press. In a recent experiment with 6 pints of tinct. aurant., the tincture when filtered was only 4 oz. short of the full quantity, and the marc lost on drying $5\frac{1}{2}$ oz. A similar quantity of tinct. gent. co. gave 6 pints of product less $3\frac{1}{4}$ oz., and the marc lost in drying 6 oz., showing that the loss can easily be confined to what actually remains in the marc. If the power be hydraulic, the marc still retains enough spirit to repay recovery by distillation when working on a large scale. For increasing the efficacy of the ordinary tincture-press after the modern improvements in the mechanical arrangement of the screw-power, the cups for receiving the marc should be narrowed, and several sizes should be adapted to the same press, so that whatever quantity of marc is in hand, a cup can be selected in which the vertical space occupied by the marc will be much greater than the horizontal.

Displacement by Water.—A critical examination of this process does not appear to have been recorded; probably, however, many pharmacists have made sufficient observations upon its practice for their own guidance in the laboratory.

The use of water for downward displacement of tinctures dates as far back as 1816, when Réal's filter-press was introduced.

The results of a systematic application of the method to the preparation of tinctures generally was submitted to the British Pharmaceutical Conference at Brighton (1872) by Stoddart and Tucker, in an elaborate paper detailing the comparative examination of 47 tinctures, each prepared by three different processes—viz., (1) maceration only; (2) the pharmacopœial combination of maceration and percolation; and (3) percolation with displacement by water. Each of these processes yielded a fair proportion of the best results as regards percentage of extractive, but it was not shown whether displacement by water produced a tincture of diminished alcoholic strength.

The use of water for upward displacement was described by Elborne in 1880. His results were fairly good, and might be considerably improved by a modification of his apparatus. In this instance also no determination was made of the alcoholic strength of the finished tincture.

In order to estimate the value and practicability of displacement by water, I will deal particularly with critical

observations on the phenomena involved in the practice of displacement generally, directing attention chiefly to the contact-surface of the two liquids and their deportment during passage through the marc.

I may say here that the discussion of the principles concerned in percolation and displacement is frequently confined to a consideration of the well-known laws of hydrostatics and hydrodynamics, as though the marc were a limpid fluid; whereas its influence is precisely as though it were a porous solid, and the passage of the liquid through it must be considered in the light of movement through capillary tubes, where hydrostatic and hydrodynamic effects are either largely discounted or altogether overbalanced by cohesive force, adhesive force, and capillarity. The effect of pressure, too, is often wrongly estimated; as a matter of fact, if the internal resistance of the marc be uniform, the only effect of pressure is to modify the rapidity of the process. In other words, with a given speed of percolation, it matters not what pressure is needed to produce it. The essential condition being that the rate of percolation shall be such that the fluid shall not pass between the particles at a greater speed than it can permeate through their tissues.

Displacement may be aptly contemplated by imagining two superposed fluids passing steadily through a vertical tube, a considerable portion of which is filled with a porous solid; evidently admixture of the fluids will increase with the speed of the process, while diffusion, and especially admixture due to currents induced by varying temperatures, will be less in the presence of the marc than in its absence.

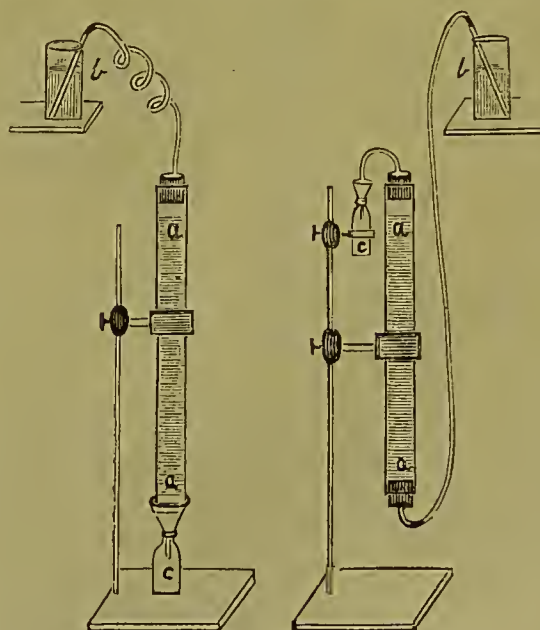
Displacement by Water—"Downward" v. "Upward."

I. Two parallel experiments were conducted. In each case 2 oz cort. cinchonæ flav. (in No. 40 powder) and 10 oz. proof spirit were mixed in a 12-oz. bottle, and occasionally agitated during three or four days, then poured into a glass tube percolator (2 feet long, 1 inch wide), having muslin tied over the lower end and resting in a funnel and bottle-receiver. As soon as the marc filled the tube, and without allowing the liquid to drain away, the upper end was closed with a perforated cork carrying a tube connected with a water-supply.

In one experiment the water was forced in at the top, and the displaced tincture collected in fractions at the bottom.

In the other case the water was forced in at the bottom, and the displaced tincture collected in fractions at the top.

The sketch illustrates the process:—



"DOWNWARD" v. "UPWARD" DISPLACEMENT.

- a. Glass tube filled with marc.
- b. Pressure-water supply.
- c. Bottle to collect displaced tincture.

The following table indicates the specific gravities of the

fractions collected, "0" being the original percolate before displacement commenced:—

Tinct. Cinchona Flav.

Downward Displacement				Upward Displacement			
		Percolate					
	Sp. Gr.	Quantity	No.	Quantity	Sp. Gr.		
Total, 9.2 oz.	.9333	6½ oz.	0	6½ oz.	.9323	Total, 9.3 oz.	
S.G., .9316	.9337	1 "	1	1 "	.9324	S.G., .9419	
Solid } 3.55	.9328	1 "	2	1 "	.9323	Solid } 3.60	
Residue } p.c.	.9327	3 drs.	3	3 drs.	.9320	Residue } p.c.	
	.9326	"	4	"	.9319		
	.9333	"	5	"	.9334		
½ colour of "5"	.9323	"	6	"	.9553	½ colour of "5"	
Tinted	.9726	"	7	"	.9773	Tinted	
Pale straw	.9810	"	8	"	.9896	Pale straw	
Nearly colourless	.9840	"	9	"	.9930	Nearly colourless	
"	.9869	"	10	"	.9931	"	

The displacement occupied five or six hours; the difference in colour and gravity of fractions 5 and 6 was evident to the eye; the loss was comparatively small. The reversal of the direction of displacement has no practical effect on the result. Fractions 5, 6, 7, and 8 of each series, showing the overlapping at the juncture of the fluids, are on the table; it will be observed that the precision of displacement is similar in both cases.

II. *Displacement by Water v. Displacement by Alcohol.*

Strong tincture of ginger was displaced by alcohol, and this in turn by water.

Twenty ounces powdered ginger was stirred with 40 oz. of rectified spirit until completely exhausted, allowed to percolate, then displaced with 40 oz. of rectified spirit, which was followed by water and the percolate collected in fractions, the gravities of which are tabulated.

Tinct. Zingib. Fort.

Days	Percolate		Sp. Gr.	
	No.	Oz.		
1	0	24½	.8432	40½ oz. A ("Tincture")
2	1	8	.8427	
3	2	5	.8427	
4	3	1½	.8435	
5	4	1½	.8436	
6	5	1½	.8427	
7	6	1½	.8413	
8	7	2	.8395	
9	8	6	.381	
10	9	7	.8347	
11	10	6	.8341	5, same colour as 4
12	11	3	.8340	6, lighter colour than 5
13	12	3	.8343	7, half colour of 6
14	13	2½	.8344	8, two-thirds colour of 7
15	14	3½	.8348	9, two-thirds colour of 8
16	15	1½	.8345	10, two-thirds colour of 9
17	16	½	.8344	
18	17	1½	.8346	
19	18	½	.8364	
20	19	½	.8398	
	20	0	—	39½ oz. B ("Alcohol")

The percolates as far as No. 4 were bulked as "tincture," (No. 5 might have been included, but over 40 oz. had already been collected); this gradually shaded off into the alcohol without any sharp line of division. The second series of percolates (B) was entirely alcoholic; the water following it would not pass through the muslin. The entire volume of spirit used was recovered without loss. The juncture surface between tincture and alcohol was not visible in the marc, but a distinct brown line encircling the percolator always evidenced the position and progress of the water through it. Comparing the mixed tincture percolates (A) with the mixed alcohol percolates (B), the former was about five times the colour and about twelve times the pungency of the latter.

Very similar results were obtained in an experiment with 32 oz. of powdered belladonna-root stirred with 48 oz. of rectified spirit until exhausted, allowed to percolate, then displaced with another 48 oz. rectified spirit, which in turn was

followed by water, and the percolate collected in fractions as before.

Linim. Belladonnae.

Days	Percolate		Sp. Gr.	
	No.	Oz.		
1	0	13½	.8522	46½ oz. "Liniment"
2	1	20	.8522	
3	2	7	.8523	
4	3	3	.8522	
5	4	3	.8522	
6	5	3	.8515	5 to 8, colour diminishing
7	6	3	.8499	
8	7	3	.8484	
9	8	3	.8474	
10	9	3	.8455	
11	10	15	.8422	48 oz. "Alcohol"
12	11	11½	.8418	9, half colour of 0; 10 to 13, similar, lighter than 9
13	12	3	.8412	
14	13	3	.8432	14, double colour of 13; bright
15	14	½	.8495	
16	15	½	.8878	
17	16	2	1.1032	

It will be seen from this table that a uniform liniment percolated as far as fraction No. 4, when it gradually thinned off into the alcohol down to fraction No. 9. No water appeared in the percolate until after No. 15, by which time 95 oz. had been collected out of 96 oz. taken at the commencement. A black line round the marc always indicated the exact position of the water, and its first appearance in the percolate was readily observed by watching the transparency of the falling drops. The last drop of No. 15 was limpid and spirituous; the first drop of No. 16 was like black treacle.

Linim. Aconiti.

A similar experiment with linim. aconiti gave almost identical results, the loss of spirit being only 1 oz. in operating on 20 oz. of root.

III. *Proof Spirit displaced by Water.*

In preparing 4 pints of tinct. cinchonae co., the saffron was used in its ordinary condition, the orange-peel replaced by an equivalent of tinct. aurant., the bark, serpentry, and cochineal in No. 40 powder; the whole of the menstruum added, and frequently agitated in a stoppered bottle for six days, transferred to a percolator, the tincture repercolated until bright, then followed by water, and the percolate collected in fractions.

Tinct. Cinchona Co.

Hours	Percolate		Sp. Gr.	
	No.	Oz.		
12	0	63½	.947	78½ oz.; all bright
	1	3	.947	
	2	3	.947	
	3	3	.947	
	4	3	.947	
	5	3	.947	
	6	1	.978	
	7	3	.991	
12	8	3	.997	Cloudy; much lighter; some ppt. very light; scarcely ppt. Clear; half colour tinct. aurant.; no ppt.

50 c.c. of No. 7, boiled off and made up with water, gained weight 1.3.

50 c.c. of No. 8, boiled off and made up with water, gained weight 0.88.

In this case displacement is fairly good—the loss of spirit 1½ oz. on 80 oz. The position of the water was scarcely visible in the marc, and its appearance in the percolate could only be observed on placing the fractions side by side; then it was clearly evident. The alteration in gravity was immediately visible on pouring a small quantity of one fraction into a previous one held between the eye and a strong light.

Four pints of tinct. rhei co. manipulated in a similar manner gave the following results:—

Tinct. Rhei Co.

Days	Percolate		Sp. Gr.	—
	No.	Oz.		
1	0	61½	·9351	74 oz. "Tincture"
2	1	5	·9353	
4	2	1	·9363	
5	3	1	·9357	
8	4	1	·9364	
9	5	3	·9380	
10	6	3	·9380	
11	7	3	·9376	
12	8	3	·9367	
13	9	3	·9375	
15	10	3	·9376	
17	11	3	·9372	
18	12	3	·9373	
23	13	3	·9434	13, Clear, limpid
25	14	3	·9764	14, Cloudy, syrupy

This experiment was unsatisfactory, the displacement being so slow that the watery contents of the percolator required occasional stirring in order to facilitate the process. This perhaps accounts somewhat for the comparatively large deficiency (6 oz. on 80 oz.). The tincture, however, was faultless.

Tinct. Chirata.

The ingredients for 32 oz. of this tincture were macerated for four days, then percolated in a cylindrical chimney-glass, the lower end of which was tied over with muslin. The fractions of percolate had the following characters:—

Days	Percolate		Sp. Gr.	—
	No.	Oz.		
1	0	21½	·9219	Tincture, 30 oz.
2	1	4	·9236	
"	2	1	·9231	
"	3	1	·9232	
"	4	1	·9231	Slightly opalescent
3	5	1½	·9226	
"	6	1	·9527	
"	7	½	·9776	
"	8	½	·9376	Darker colour than 0; "bright," but slight sediment on keeping
4	9	½	·9936	
"	10	½	·9979	
"	11	½	·9387	
"	12	½	1·0001	Same colour as 0; still very bitter
5	13	3	1·0060	

In this case the sp. gr. shows the displacement to be precise, but it required close comparative examination of the fractions placed in the order of collection to find where tincture ceased and water followed. It was, however, unmistakable by the permanent slight opalescence of No. 6, and the darker colour of subsequent fractions. At a glance all the fractions seemed alike. The continued bitterness in the marc after No. 13 clearly indicates that the B.P. formula by no means exhausts the herb.

Tinct. Opii.

The marc from 4 pints of this tincture after percolation was displaced by water with the following results:—

Percolate.		Sp. Gr.	—
No.	Oz.		
0	—	·950	Bright. All same colour
1	2	·957	
2	2	·952	
3	2	·963	
4	2	·988	Lighter; trace deposit
5	2	1·006	Much lighter; some deposit
6	2	1·008	Very much lighter; less deposit.
			Very much lighter; less deposit.

50 c.c. No. 4 boiled off and made up with water gained weight 1·68.
50 c.c. No. 6 boiled off and made up with water gained weight 0·85.

No line of demarcation was visible; percolation at first was rapid, Nos. 5 and 6 very slow.

IV. *Chloroform displaced by Water.*

Thirty fluid ounces of chloroformum belladonnae, B.P.C., were prepared and the fluid displaced by water; the progress

of the latter in the marc was clearly visible, and the last percolate of chloroform was tardily followed by a black syrupy extract, which of course had no tendency to mix with the displaced fluid. The product was 6½ oz. less than the original volume of chloroform taken. The loss may partly be accounted for by the high temperature of the laboratory in July (75° F.).

V. The following deductions may be made from an examination of these tables:—

(1) That the precision of displacement depends not upon the relative position of the superposed fluids, but upon their relative affinities and miscibility at the contact surface; an alcoholic solution being more perfectly displaced by water than by alcohol, especially if each fluid holds in solution a substance insoluble in the other, as in alcoholic percolates of ginger, belladonna, aconite, &c.

(2) In the downward displacement of alcoholic tinctures by water, diffusion of the latter into the tincture in advance of the rate of percolation takes place to an inconsiderable extent only.

VI. *Conclusion*—The preparation of tinctures, liniments, &c., by percolation and displacement by water, is much more economical than by screw-pressure of the marc; the process is quite reliable if carefully conducted, but is better adapted to stronger spirituous preparations than to proof-spirit compounds. It is, perhaps, needless to point out that the method is unsuitable for operations on a large scale.

The chief points to be observed in order to secure good results are:—

(1) The materials should be in fairly uniform powder; No. 20 for porous, readily permeable substances; No. 40, or finer, for drugs of denser structure.

(2) The ingredients should be freely macerated in the whole of the menstruum (either stirred in the percolator or agitated in a bottle) until extraction is complete.

(3) The most important point of all is that the marc shall be entirely free from air-spaces and air-channels. To ensure this, particular attention must be paid to the method of packing the marc, and the precise moment when water should be superposed. The marc should be stirred in the percolator with sufficient menstruum to form a semi-fluid mixture; when quite uniform and free from air-bubbles, it should be allowed to drain, occasionally jarring the side of the percolator against the hand until it acquires solidity; water should be immediately floated on so as not to disturb the marc. A convenient method is to pour the water through a funnel into the inverted lid of an ointment-pot, previously laid on the surface of the marc.

(4) The displacement should not be rapid, and the percolate should be collected in relatively small fractions when the total quantity approaches completion—cloudiness, altered gravity, and colour indicating the termination of the process.

THE PHARMACOPŒIAL INSTRUCTIONS FOR THE PREPARATION OF TINCTURES.

By R. H. PARKER, F.C.S.

In considering the official directions for the preparation of tinctures, the instruction to "add sufficient spirit to make a pint" does not appear calculated to ensure uniformity of product under variety of manipulation—thus, if I make a pint of tinct. aurant., following the B.P. instructions, the final addition of 10 or 12 per cent. of menstruum may be required to adjust the volume of the finished product; if operating on 6 pints I can reduce the final deficiency nearly to 1 per cent., while if I have to make 10 or more gallons the difficulty of manipulation may increase the loss to 6 or 7 per cent. If the "making up to quantity" be omitted, the product will be of the same strength whether 5 oz. or 50 gallons be made at a time, and whether the marc be pressed in a lemon-squeezer or by hydraulic power.

I would, therefore, suggest, that in the next issue of the Pharmacopœia, all tinctures and similar preparations of about 1-in-8 strength be ordered to be prepared by maceration only, without final adjustment of quantity; those of 1-in-4 or greater strength "to be prepared by percolation so that N fl. oz. of percolate represent the activity of 1 oz. of drug." The strength of the product would thus be clearly defined, and the pharmacist might be allowed to select his own method of recovering the residue, according to the quantity of material dealt with. The "making-up" is already

omitted from the directions for preparing tinctures of *nuxvomica* and *cannabis indica*.

The formulæ for tinct. *zingiberis* and tinct. *camph. co.* might be simplified, the former being prepared by diluting the stronger tincture, and the latter by replacing opium with an equivalent of its tincture.

I think also that the footnote to the liniment of belladonna and aconite should be omitted, as a needless apology, and an aspersion on the manipulative skill of the pharmacist, there being no difficulty in preparing these liniments of 1-in-1 strength if required.

Mr. UMNEY, on being called upon by the President on the ground that he gave a paper dealing with this subject in 1870, said that when he looked back as far as the year 1870 he was bound to say he was not then up to date. (Laughter.) However, he had worked with and manufactured a good deal of tincture since that time, and he was very pleased with the experiments that Mr. Parker had put before them as to how far they could go in the displacement of alcohol by water. Professor Redwood had lectured on this subject in days gone by, and he had said that it was not possible to carry out this method with any success. He (Mr. Umney) had no doubt a pharmacist operating merely for himself and under favourable conditions, might succeed in making uniform tinctures, but he feared that the process of displacing alcohol by water was rather dangerous to the product, although, of course, in the hands of man like Mr. Parker the experiment might be safe. He, personally, had discarded both displacement by water and by alcohol. He preferred to use heat rather than displacement by water. In the case of ginger, so far as he had gone, he had found that it was not possible to exhaust 1 lb. of the drug unless one lost $\frac{1}{4}$ lb. of alcohol in the process. If he took 100 lbs. of ginger, he found he lost, say, 25 lbs. of alcohol in the process. He was glad to have been able to recant what he said twenty-five years ago, and to give his experience in the meantime. (Applause.)

Mr. HARGRAVES said Mr. Parker had put his paper before them in a very clear manner, and he could not help thinking that it would be of use to retailers. He would like to ask if any difficulty had been found with regard to the swelling of woody tissue on the addition of water, thus blocking the filter.

Mr. CONROY said that his experience agreed with that of Mr. Umney, and also, he thought, of most large makers. His method was to get as much tincture out of the drug by continued percolation as possible, and then subject the marc to heat to extract the remainder. He thought that Mr. Parker's process was entirely inapplicable when working on large quantities. It might be successful with skilled workers like the author and others, but in large works, where the process had to be entrusted to the ordinary workmen of the laboratory, he was sure it could not be safely employed.

Mr. MARTINDALE said that, in the experiments he had carried out, he displaced, as far as he could, after getting the quantity of tincture required, and then reserved the spirit so got for the next manufacture. The difficulty was that the mixing of the water with the spirit went on so rapidly, and the expansion of the woody fibre left in the percolator was such, that unless the top layers were thrown off now and then, it could not be got through quickly enough. It was not worth while to manufacture in the manner described, and when it came to the displacement of tinctures like ordinary proof-spirit tinctures, it was quite a waste of time.

Dr. SYMES said that this paper did not, after all, solve the problem of how to prepare tinctures economically on a small scale. Such a method was a desideratum, as it was very desirable that pharmacists should prepare their own tinctures. One of the difficulties of this method was that immediately water came in contact with the spirit, precipitation occurred, which filled the interstices of the marc and stopped the percolation. Therefore he was afraid that displacement by water was difficult. If the pharmacist made on a small scale he must use more menstruum and be content to lose a certain amount of spirit, unless he accumulated the marcs and subjected them eventually to distillation. In distilling marcs he pointed out that it was most advantageous to keep

the marc well agitated during the whole process, as thereby the distillation was greatly accelerated.

Mr. NAYLOR was afraid the tendency nowadays was in the direction of economy—i.e., to ascertain how far a pound of a given drug will go in making a given preparation—and he was afraid that they were proceeding rather in the direction of obtaining the final product by complete exhaustion of the drug than in studying the special quality of the product. He had been surprised and sorry to hear from leading manufacturers, Messrs. Umney and Conroy, that such preparations were not made in accordance with the directions of the Pharmacopœia. He knew from personal experience that many products on the market were not of the standard required, and this was probably due to the fact that they were not made in accordance with the pharmacopœial directions. He would not say that such were deficient in utility; but while he advocated economic processes and while they had definite pharmacopœial instructions, he thought they were in loyalty bound to use official methods, unless they were perfectly satisfied that the product tallied in all directions with the official product.

Mr. CONROY said that Mr. Naylor had made a totally wrong assumption. The tinctures he had spoken of were made by the Pharmacopœia process. As much spirit was obtained by the process as possible, and the residue recovered afterwards from the marc by distillation. Where was the divergence? He thought the assumption was outrageous. (Hear, hear.)

The PRESIDENT observed that Mr. Naylor had misunderstood the remarks of Messrs. Umney and Conroy. (Hear, hear.)

Mr. PERRY asked what shaped percolator Mr. Parker had used, and whether the shape made any difference in the final product. With regard to the recovery of spirit from lin. belladonnæ, he had found it impossible with water. The percolator clogged, and quite defeated the object in view.

Mr. GROVES agreed with Mr. Parker that the strength of the product obtained by pressing a marc depended on the strength of the pressure applied. If a uniform preparation was wanted, then mere straining off must be adopted, and the product made up to measure; or, if pressure was to be employed, its exact amount must be specified. He could not at all understand how it was that, in attempting to displace spirit with water, the mixing took place more readily in the case of proof spirit than in that of rectified spirit; he would have expected the reverse to be the case.

Mr. MARTINDALE: Probably because one is so much slower.

The PRESIDENT, who spoke with difficulty, apologised for his almost voiceless condition, and then proceeded to remark upon the paper at considerable length. He was specially interested in the questions which had been raised, because he was the pharmaceutical son of the man who introduced displacement by water—viz., Mr. Deane, the first President of the Conference. Further, in a critique upon the Pharmacopœia of 1885, he had characterised the official process for preparing tinctures as disgraceful and as, on the large scale, wasteful, rousing by that criticism, perhaps more than by any other observation, the anger of the editor of the Pharmacopœia. But he still adhered to the fact that the process of the B.P. was disgraceful as a process of displacement. To require, say, tincture of myrrh to be made by maceration with three-fourths of the rectified spirit, and then packing in a percolator and washing with the other fourth, and to call this process displacement was ridiculous. He was surprised that the author had made no reference to osmosis. It must be borne in mind that they were dealing with a dry substance which was cellular in nature, and when this was moistened, first of all, as it should be, with a proper proportion of water, there would form inside the cells a concentrated preparation. Then when a liquid of lower specific gravity was introduced the process of osmosis would be set up between the liquid inside the cells, and that outside; and time must be allowed for this mutual change to complete itself. For his own part, he would be afraid to use the process of displacement lest he should get into the hands of one of the active gentlemen appointed under the Food and Drugs Act because his tinctures were under the required strength. It was a process of that kind which had obtained in old-fashioned pharmacies. Many present would remember the old black bottles which stood

on the top shelves of the earlier pharmacies. In these the tinctures were macerated in, say, 4-pint quantities, and the first, second, and third pint poured off, the last pint or fraction of a pint expressed. No one would imagine such a process would yield a tincture of uniform strength; the final portion would infallibly be of a different strength to the first two or three. As regarded the preparation of small quantities of tinctures by maceration and pouring off the quantity required, he would not recommend any pharmacist, however small his business, to follow such a plan. To prepare 5 drachms of tincture by the method Mr. Parker indicated was not a pharmaceutical process or one he could recommend. Before a drop of any tincture was used it should be a finished preparation—(hear, hear)—and that whether a pint or 20 gallons were made. As regarded the form of percolator to be employed, he had a great affection for that devised by Mr. Deane. In using this one got out the whole of the extractive in the first 50 per cent. of the menstruum, and by whatever process the marc was treated the product obtained was only a weak menstruum, and it did not materially affect the finished product whether, say, 1 or 2 pints were obtained from it. While appreciating the value of Mr. Parker's work, he (the author) would hardly expect older men—if he might say so—and men of more experience to adopt his suggestions as the recommendations of the practical side of the Conference. He hoped there was sufficient literature in existence for the editor of the *Pharmacopœia* and those responsible for the compilation of its formulæ to devise better processes than were in vogue to-day.

Mr. PARKER said he should have drawn attention to two series of specimens, Nos. 5, 6, 7 and 8, in the percolates obtained by upward and downward displacement. No. 5 was the tincture unchanged, 6 was about one-third as rich in colouring-matter, while 7 and 8 were practically colourless. The two series were almost absolutely the same, showing that there was no advantage in either of the two methods of displacement if the same conditions were observed. He must urge that "prepared according to the instructions of the B.P." did not guarantee a B.P. product; "prepared by a careful pharmacist" would be a much better guarantee. (Hear, hear.) The instructions in the *Pharmacopœia* might be followed skilfully and carefully or otherwise, and the product would vary accordingly. A careful pharmacist would produce a satisfactory tincture by any process, and if it were not satisfactory he would be aware of it, and could act accordingly. The origin of the experiments was due to a sort of suspicion of displacement by water that he had held for many years. His earlier practice had been, in the case of tr. zingib. fort. and lin. belladonnæ, to have three series of percolates going. First he made one batch of 40 oz.; when that passed through the marc a further 40 oz. was run in, the percolate reserved, and this followed by a third similar quantity. Then the next time he wanted to make the tincture he passed through the new marc first the second reserve percolate of the previous operation, afterwards washing through with additional quantities of spirit. Speaking to one or two fellow-pharmacists, he was asked whether he ever tried water-displacement. His answer was, No, nor did he ever intend to adopt a process so manifestly absurd. Well, he was told that theory was one thing and practice another—a maxim he would commend to Mr. Martindale's consideration—and advised to try the process for himself. Putting it into practice with tincture of ginger, he was somewhat amazed to see that, instead of the water mixing with the spirit there was a little line of demarcation around the percolator, where the two liquids came in contact; this passed gradually down the percolator, and not until it came near to the bottom was the spirit which percolates through mixed with any water. The same proved true of belladonna. After satisfying himself of the value of the process as regarded these two preparations, he applied it to others, more carefully and critically, to see how the matter really stood, and the tables before the meeting embodied the results of his experiments. At the same time, he would not recommend the process indiscriminately. He would maintain that, whatever pharmacopœial preparation were in question, the responsibility of making it correctly fell upon the pharmacist himself—(hear, hear)—and no process requiring scientific knowledge and careful preparation should be conducted by anyone else. How Mr. Umney could get 30 per

cent. of water in his percolate was more than he (the speaker) could understand. If the marc were properly packed in the percolator, and water were introduced, it was impossible to get it below the spirit. Proof spirit was not so perfectly displaced as rectified spirit, because it more readily mixed with the water. In the case of tincture of ginger, 80 oz. are put on, and 80 oz. collected before water appears. It is the introduction of water, the partial dilution of the alcohol with water—which makes the spirit more readily mix with more water. The same was true of the behaviour of dilute and strong sulphuric acid. The danger of displacement by water was only when the process was in incompetent hands. If one had a marc with a tubular hole through the entire distance and water added, it would, of course, run through the whole mass. He thought that if Mr. Martin examined the actual details of the tables he would see the precision with which the percolation went on with both rectified and proof spirit, these liquids appearing unaltered until the water was close upon their heels. But he would not recommend the process for proof-spirit tinctures generally. He would be pleased to hand Mr. Naylor samples of the tincture of rhubarb, and to get him to compare them with others made by any other process. Then, again, there was the question of departure from pharmacopœial directions. Mr. Naylor had laid it on thick there. (Laughter.) How he could have fallen into the error of completely misunderstanding what Mr. Umney and Mr. Conroy had said was a mystery to him. The matter was perfectly clear that on a manufacturing scale the finished tincture was first made. The whole question was one of recovering waste spirit from the marc. Mr. Umney: Thank you!) It was not so much a question of following instructions as of following instructions intelligently, and it was this which made variations in the results. If one had 4 pints of tincture of rhubarb to make, the most perfect system for getting a uniform product among twenty manipulators would be to put the whole thing into a vessel and shake it until nothing more could be obtained from the drug; whereas taking twenty manipulators and telling them to follow the B.P. process would leave a very wide margin for variation, in consequence of loss in the process. This answered Mr. Martin's stricture on the making of small quantities of tincture of saffron. The employment of the whole of the menstruum at once had the advantage that the first portion displaced could be at once used. Percolation took place very slowly, in some cases even days. With regard to the swelling of the marc, there was no difficulty if a conical percolator were employed. In displacing ginger and belladonna the separation of resin was met by slightly stirring the aqueous portion of the upper part of the percolator, otherwise the shape of the percolator was of little importance. One investigator had obtained the best results by using a funnel with an angular aperture of 45°, while another thought that good results could be obtained only by using a cylindrical percolator. But the result depended more upon manipulation than upon the shape of the vessel. On the whole, for small quantities he had found a slightly conical percolator was best. The reason why he had not referred to osmosis separately was because he had mentioned diffusion, which he found took place to practically no extent, although the two fluids were in contact sixteen days. In the preparation of rectified-spirit tinctures, especially of a resinous character, the displacement process was most applicable for small manufacturers. He had no doubt it was impracticable on the large scale, but in making from 1 to 4 pints the most economical process for liniment of belladonna and strong tincture of ginger was displacement by water; and he undertook to prove that the strength was as good as that attained by any other process, and better than that yielded by the *Pharmacopœia* unless exactly and properly followed out.

[At this point the Conference adjourned for the day.]

THE GARDEN-PARTY AT NEW COLLEGE.

At 4.30 P.M. on Tuesday a garden-party was held in the grounds of New College, by kind permission of the Warden and Fellows, and was largely attended. Among the guests were the Mayor and Mayoress (Alderman and Mrs. Gray). The college is the work of William of Wykeham, Bishop of

Winchester, and is situated just within the old city walls, part of which runs through the college grounds. The magnificent gardens and quadrangle were much admired, and the amateur photographers in the party were busy with hand-camoras taking snap-shots of the various points of interest. The well-kept lawns, both in the quadrangle and the gardens, are one of the features of the college, and recall to mind the answer of the gardener to the American visitor who inquired how the English managed to make such perfect swards. The reply was, "Well, sir, we cut 'em and we roll 'em and we leave them for three hundred years." Afternoon tea was provided, and a special attraction was the ballad-singing of the "Kammer" Glee Quartett, composed of singers from Christ Church and New College Cathedrals, and under the direction of Mr. E. Jackson, of New College. The music was rendered with exquisite taste and effect, and added much to the afternoon's enjoyment. The rendering of "Annie Laurie" called forth special admiration, and was heartily encored. The weather was all that could be desired, and the arrangements of the Local Secretary perfect.

WEDNESDAY, AUGUST 1, 1894.

THE President was punctual in taking the chair on Wednesday morning, but the attendance at the appointed hour was extremely scant, not more than a score of members being present at the commencement of the proceedings, though this number was augmented later. An amended list of papers was circulated by the Hon. Secretary, an omission being noticed in the removal of the paper by Mr. H. Bowden on the "Constituents of the Root of *Hemidesmus indicus*," which, it was notified, could not be prepared in time for the Conference.

The first paper read was—

LABORATORY NOTES.

(Abstract.)

By F. C. J. BIRD.

Potassium Stearate in Turpentine Liniments.—Turning to account the marked property of forming gelatinous solutions with water possessed by alkaline stearates, the author employed the potassium compound in the preparation of turpentine liniment. The best method was to dissolve the acid in the turpentine and add the mixture of ammonia and distilled water, when agitation instantly produced a milk-white and permanent emulsion. The proportion of stearic acid necessary varied from 1 to 2 per cent., increasing directly as the amount of water present. The B.P. lin. terebinthini prepared in this manner was as follows:—

Oil of turpentine	16 fl. oz.
Camphor	1 oz.
Stearic acid	80 grs.
Solution of potash	$\frac{1}{2}$ fl. oz.
Distilled water	$1\frac{1}{2}$ "

The stearic acid was melted with a little of the turpentine on a water-bath, and added to the remainder, in which the camphor had been dissolved. To the potash and distilled water, previously mixed, the turpentine solution was added, and the whole agitated. The result was a liniment of uniform consistence and appearance, and this whatever variations of manipulation were employed.

Distilled Water.—In order to obtain distilled water free from odour and of good keeping qualities, the author found the best method to be distillation from potassium bichromate and sulphuric acid in the proportions of 10 grs. and 1 fl. dr. to each gallon. With water from London mains oxalic or sulphuric acid alone was sufficient. It was believed that a fertile source of fungi in distilled water was in the vegetable debris or the waste to be found in the dust of a pharmacy. The form of storage-vessel recommended was a large glass bottle with stoneware tap and narrow neck plugged with cotton-wool.

Syrup. Hypophos. Co., B.P.C.—To avoid the sulphuretted odour well known to sometimes develop in this preparation the author recommended the use of pure cane sugar which had been neither bleached nor artificially coloured. It was also necessary to ensure the absence of sulphates, which become reduced by the free hypophosphorous acid in the

syrup. Either very pure salts must be used, or the more convenient plan followed of precipitating sulphates by the careful addition of a strong solution of barium hypophosphite.

Repercolation as a B.P. Process.—In spite of the disadvantage of accumulation of weak fractions of percolates the author recommended repercolation, especially for ext. cocæ liq. and podophylli resina. When ext. cocæ liq. was prepared by repercolation the product did not deposit even after many months' keeping. The sp. gr. was about 1,004 as against 1,010 by the B.P. process. The author used either four or six percolators, dividing the powdered drug into four or six equal parts. Each of the latter was uniformly moistened with an equal volume of proof spirit, passed through a moderately coarse sieve, and introduced into the percolator, previously plugged with cotton-wool and clean silver sand. Proof spirit was then poured on until a stratum of liquid appeared above the marc. After twelve hours' maceration 16 fl. oz. (when a pound of drug was worked) were run through, collected separately, and used to moisten the second portion of drug. This operation was repeated for each percolator until, at the third or fourth percolator, the first 16 oz. of percolate attained a sp. gr. of about 1,010. This percolate was set aside, the second 16 fl. oz. used to moisten the drug for the next percolator, and so on. From the last one sufficient percolate was collected to make 92 fl. oz. in all. An allowance of 4 fl. oz. was made in the product to compensate for the extract in the weak percolates reserved for a subsequent operation.

The process of the B.P. for *Podophylli Resina*, when modified by substituting repercolation for the present method, yielded a product having the peculiar advantages of being completely soluble in rectified spirit, in solution of ammonia, and in sp. ammon. arom. The rhizome should be in No. 80 powder, and a fluid extract prepared, of which each 2 parts equalled 1 of drug. This, cleared by decantation, or filtering, should be poured into 3 volumes of ice-cold water, and the remaining directions followed as they stand. A suitable temperature for drying the resin was 100° F. A sample prepared in this way was yellowish with a fair tinge of green, answering the B.P. requirements in every particular. The yield was about 43 per cent.

Mr. GROVES (for the President) having invited discussion, Mr. INCE wished to say a word or two on the question of liniments. The liniment shown was presented in the form of an emulsion. It was very desirable to have any process which would give a uniform result, and if the process recommended would effect that it would be a considerable advance. With regard to the preparation of emulsions, it was perfectly well known to every pharmacist that the formula for an emulsion played a comparatively small part in the result. The ultimate product depended more upon the accuracy and delicacy—the tact, so to speak, of manipulation—than upon the formula. He would be very glad to welcome any method by which this difficulty would be met. At present it was known that in the case of all these liniments made with soap, much depended on the operator as to what turned out. Two experienced manipulators might stand side by side, working by the same process and yet produce emulsions of a totally different character, one being gelatinous and the other much more fluid. It must be recollected when any new method was offered as an improvement—and this might be really so—that by skill in manipulation a very good result could be obtained by the present formula. After all, it was to the dispenser that the excellence of the preparation would be due. Therefore he thought it would be a distinct advantage to have a formula that under any condition would yield a uniform result. As regarded the small still of continuous action, he did not think many of our pharmacists were aware of the advantages of the process, especially now that stills could be obtained which would work remarkably well and yield results quite comparable with those attained on the large scale.

Mr. JONES (Coventry) said that he was specially interested in the samples of turpentine liniment, because the process gave very uniform results. As far as the method was concerned, he would state that some four or five years ago he had shown before the Midland Chemists' Association a similar preparation, but prepared with oleic acid in place of

stearic. Stearic acid had the advantage over the oleic that it could be obtained in a greater state of purity. He had some years ago tried various fatty acids, but had found oleic acid to answer best, but he was quite prepared to accept stearic acid as the better basis for the reason stated. He would like to ask, Did Mr. Bird's emulsion separate? In his own samples he had noticed a small layer separate out at the bottom, but a perfect emulsion resulted on shaking. If Mr. Bird's did not separate.

Mr. LINFORD said that he had worked the process of Mr. Jones for turpentine liniment for some years, and had found that by carefully testing the amount of potash necessary to neutralise the oleic acid he had obtained a perfect emulsion which did not separate in six months. With regard to repercolation he had worked the process for ten years with many drugs for preparing fluid extracts, concentrated infusions, and fluid extract of ipecacuanha, and could say that the process was an undoubted success. It was necessary to carefully regulate the flow through the series of percolators to obtain the best results.

Dr. SYMES said that with reference to the syrup of hypophosphites, his experience went to show that the unpleasant odour developed was almost entirely due to the colouring-matter—the ultramarine—used by sugar-refiners in colouring the sugar used. By obtaining a sugar free from this blue colouring they avoided the chances of decomposition, and also the unpleasant odour.

Mr. T. TYRER emphasised the remarks made by Dr. Symes. He observed yesterday that the President in his admirable address showed that he held an ideal standard, but in his commercial transactions with his firm (Mr. Tyrer's) the President, and several other gentlemen present, did not believe in idealism. They insisted upon the manufacturer having a standard only a little higher than that of the Pharmacopœia. With regard to Mr. Bird's observations about the sulphates, those who had any notion of the condition involved in the manufacture of hypophosphites—anybody who read the text-books, and particularly Professor Attfield's—would find a description there which was justified by the formula and the equation given. The equation did not represent what went on. The sulphates appeared from two or three sources. The phosphorus contained always a little sulphur; the lime also contained more or less sulphate, and the water might also contain some. You had, therefore, possibilities as to sulphates which could be easily imagined. With regard to the barium hypophosphite, he would draw Mr. Bird's attention to the solubility of barium sulphate itself in saline solutions. Young chemists particularly, he thought, were under the wrong impression that barium was the easiest thing to get out of a solution. It was almost impossible, in a strong solution of hypophosphites, to get the exact point at which the barium is just present in sufficient amount to remove the sulphates. Some chemists objected also to the slightest trace of barium as much as they objected to the simplest trace of sulphate. Under ordinary manufacturing conditions, it was one of those difficulties which science, and experience, and skill could avoid. He said, beware of sugar.

Mr. UMNEY, thanking Mr. Bird for bringing the matter before the Conference, said it was necessary to overhaul the formula for hypophosphite syrup, as it was by no means so perfect as it might be. As to what Dr. Symes had said about the sugar, strange to say, he (the speaker) went to Liverpool for his sugar, buying it unblued and warranted free from colouring. Yet, in spite of this, he got the odour referred to. Mr. Symes might shake his head, but he (Mr. Umney) was constantly getting complaints about the smell of phosphuretted hydrogen, or whatever it was. He had no doubt the odour was not due to the sugar but to some impurity in the hypophosphites. As they had a manufacturer of hypophosphites present he should set to work to remedy the matter, and the compilers of the Formulary might also introduce some effective modifications of the formula. As to repercolation, that was an old question. Twenty-five years before, he had recommended the process for cinchona-bark, in which case one could start with water and get a gravity of 1,050 without heat. Mr. Bird's contribution would be very valuable, but it was difficult to discuss it after the mere rapid reading of the paper.

Mr. LINFORD had never been troubled with the odour

mentioned in the syrup, having always used a sugar free from blue or colour of any sort.

Mr. CONROY thought that probably Mr. Umney obtained his sugar from the same source as his own house, and that was absolutely free from colour. But although they made the syrup with that sugar, they still got the odour, and he (the speaker) could only attribute it to the hypophosphites themselves.

Mr. PARKER said there seemed to be a game of battledore and shuttlecock between the sugar and the sulphates. For himself, he believed both sources were involved in the production of sulphuretted hydrogen. But the great bulk of the danger was from the sugar, in his opinion; if manufacturers steered clear of sulphur in the sugar, they would avoid the difficulty referred to. Since he had adopted the purest sugar to be obtained, he had never had a single sample of syrup which had given rise to complaint. At the same time, he always erred on the side of having a slight excess of sulphuric acid in the syrup.

Mr. GERRARD observed that Mr. Bird had shown them how to get rid of some of the worries to which pharmacists were subject. Liniment of turpentine had always been a worry to the student, the examinee, and the experienced pharmacist, because the soap used was so variable in nature. Now Mr. Bird had given them something definite, and, using this formula, they were more likely to get definite results. He hoped the preparation would keep well in the condition of emulsion. He would not condemn it, however, if it separated after a time to a slight extent. It was to be hoped that, if after some consideration the formula were found to be what the author represented it, the use of stearic acid would be introduced into the next Pharmacopœia. The liquid extract of coca had recently given him a certain amount of anxiety. A prescription had been dispensed containing liquid extract of coca which gave a precipitate on mixing. This was sent out with a "shake bottle" label, but a few days later, the physician brought it back with the chlorophyll adhering to the sides of the bottle, and suggested that there was some mistake in the prescribing or dispensing. It was found, however, on repeating the dispensing with a fresh preparation of coca, that precisely the same result was obtained. Now, if this chlorophyll could only be got rid of, it would be a great advantage; it was nasty; they did not want it, and it gave rise to constant difficulties. If a watery extract of coca could be obtained, it would have great advantages over the proof-spirit preparation. In the particular instance he had referred to the medicine had been supplied to a partner in one of the largest wholesale houses in London, and he hinted suspicion that the preparation had been made in the pharmacy. As a matter of fact, he (Mr. Gerrard) found on inquiry that the extract had been obtained from the London house of this very gentleman, so that he (the speaker) was able to throw back some of the responsibility for the preparation on the manufacturer himself. It was one of the advantages of that Conference that it helped pharmacists to get rid of some of their worries.

Mr. PERRY said that there was one drug which was specially suitable for the process of repercolation—namely, senna. He had prepared syr. sennæ, B.P., for some time according to Dr. Clark's directions, and had obtained admirable results. The leaves were readily exhausted, and they were one of the Pharmacopœia drugs most suitable for this process. For details he would refer the members to Dr. Clark's paper.

Mr. BIRD, in reply, said that with reference to the turpentine liniment he was well acquainted with Mr. Jones's process, which was good, but he had found it separate, and possibly this might be due to difficulty in adjusting the proportions of caustic potash and oleic acid. Using stearic acid a little excess did not matter. Almost any quantity of potash might be used, as there were two stearates of potash, and either of these appeared to work easily. He had not found his own preparation separate in three weeks. His experience with syrup hypophosph. co. was that both the sugar and sulphate took part in producing the odour. He had tried experiments, using pure cane sugar and ordinary granulated sugar, and had also used a slight excess of sulphate, and in both cases an odour was developed, showing that both substances played a part in the decomposition.

NOTE ON EXTRACT OF MALT WITH COD-LIVER OIL.

By HY. WILLIAM JONES, F.C.S.

Extract of malt with cod-liver oil is popularly supposed to contain as much oil as an ordinary emulsion—that is, half its bulk.

To ascertain how far certain advertised preparations conformed to that standard I selected four well-known brands, which I judged to have the largest sale.

The method of assay was as follows:—Five grammes were dissolved in 50 c.c. of water, placed in a stoppered glass separator, and 50 c.c. of ether added. After standing till the ether containing the dissolved oil had separated, the entire upper layer, with flocculent matter (a small quantity of emulsified ether and extract), was separated from the clear layer of malt solution. The latter was washed with 25 c.c. of ether, and the combined ethereal solutions allowed to evaporate spontaneously in a glass dish with upright sides. The residue was redissolved in ether, to separate the small amount of extract, dried in a water-oven after evaporation, and finally weighed.

The following table gives the percentages obtained—the amount by volume being calculated from the percentages by weight, the specific gravity of the samples, and of average cod-liver oil:—

	Percentage by weight	Percentage by volume	Consistence
A	22.76	29.5	Semi-fluid
B	17.82	24.0	Thick
C	14.43	20.1	"
D	1.33	2.0	"

Samples made with 50 per cent. by volume would obviously compete unfavourably with those brands containing less oil, and would have a tendency to show greater rancidity, if not actual separation of oil.

As a matter of fact, I know an instance where sample "D" was selected for continued use, as it was regarded as the most palatable preparation that could be procured.

Mr. GROVES said that this paper would considerably open the eyes of pharmacists. The results were astonishing.

Mr. ALCOCK said that it would be advantageous if Mr. Jones would state more definitely the origin of his samples. It was most probable that the bad samples came from the Stores, and it was as well to have such matters published, so that the public might see the dishonest competition with which the pharmacist had to contend. He would like to ask how Mr. Jones succeeded in separating the flocculent portion of the emulsion from the ethereal layer in extracting the oil. The process was very useful for separating oil from emulsions, but it was often difficult to remove the whole of the oil owing to the flocculent layer formed on shaking.

Mr. UMNEY had hoped that some little light might have been thrown on this subject, but Mr. Jones had dropped the matter just where he should have gone on. As there was no authorised formula it was quite time that this was taken up by their colleagues on the Formulary Committee, and some decision come to as to whether a 10, 20, 30 or 40 per cent. formula was desirable. If Mr. Jones had gone into this, and had given a formula which he had found satisfactory, they would have had some real information. He would have liked to know whether the substance could be made by simple mechanical mixture, or whether an emulsifying-agent, such as gum arabic, was necessary. Mr. Jones might have given them the benefit of his experiments in this direction. The public liked this preparation, and thought that benefit resulted from an admixture of the extract and oil, and the sooner the Formulary Committee laid hold of this matter, and said what strength and method of admixture should be adopted, the better would they be satisfied. He was astonished to find such variation in trade samples. His own opinion had been that the average amount of oil present was 20 to 25 per cent. He hoped Mr. Jones would continue his experiments; he would doubtless be able to decide, and give them the necessary information as to whether gum was or was not necessary, and what was a suitable strength for adoption.

Mr. CONROY said that so far as his impression went the preparation contained 25 per cent. of oil. Years before it used to be 50 per cent., and what was generally sent out now was about 25 per cent. Mr. Umney said he was not surprised to hear the small amount of oil contained in the preparation referred to; he (the speaker) was very much surprised that such deception should be carried on.

Mr. UMNEY: I did express my horror at that.

The PRESIDENT agreed that Mr. Jones had stopped short of some very interesting points, and hoped he would continue the work and make suggestions as to how the preparation could be improved. They all knew, of course, that when any advertised article claimed to be something or other, it frequently was nothing of the kind. He had recently had in hand a preparation with a fancy name ending in "ol"—he would not say what—which was claimed to impart strength, physically and mentally, and every bottle of which had a copy of a certificate by the *Lancet* that it contained 15 per cent. of moisture. Well, on examining the preparation it was found at once to contain 30 per cent. of moisture. That would show the value of certificates by the *Lancet*. But this was nothing exceptional; the same thing ran through the whole gamut of advertised preparations. It was quite true that they did want a formula for the cod-liver oil and malt, and such should be made on a scientific basis. He was sorry the Chairman of the Formulary Committee was not present, but no doubt he would take note of the matter.

Mr. JONES said that although he had made experiments on the subject he was not in a position to give a formula for a preparation containing 50 per cent. of oil which would keep six or nine months. He would like to ask the Formulary Committee to issue a formula, whether with 10 or 20 per cent. of oil, though it would be preferable to have one containing 50 per cent. On one Blue-list there was a question as to why the extract of malt went solid. Well, everyone knew, he supposed, why this happened. As regarded separating the fat, he found the best method was to divide the analysis into two parts, to allow the ethereal layer to separate, get a clear watery layer, and run off the entire ether. This was all evaporated down and redissolved. By this method there was no chance of leaving anything behind. He remembered seeing some time before, in one of the journals, an answer to a correspondent about this cod-liver oil and malt. The querist was told that he could not expect to compete with the large makers, who spent thousands of pounds in perfecting mechanical appliances for its manufacture. He did not think that was at all necessary; a very satisfactory emulsion could be made by ordinary means in a pestle and mortar. Of course, the unfortunate part was that it did not keep, and thousands of pounds would not, he thought, overcome this difficulty. (Laughter.)

THE KEEPING QUALITIES OF CERTAIN SAMPLES OF SPIRIT OF NITROUS ETHER.

By HENRY WILLIAM JONES, F.C.S.

The rapid deterioration of spirit of nitrous ether, under ordinary conditions of every-day use, is well known, and has been commented upon by a number of observers.

To test the keeping qualities under specially good conditions, I set aside a number of samples in January and February last year (1893). The stoppers of the bottles were luted down, tied over with leather, and placed in a cool cellar, where they remained undisturbed until they were finally examined.

The loss of ethyl nitrite was considerably less than anticipated, and is shown in a tabular form. Column I. gives the number of c.c. of nitric oxide yielded by 5 c.c. of the spirit when received, and column II. the yield of gas after keeping for the time specified.

Since testing my samples, I find that similar, though not quite identical, results have been recorded in the last (1894) edition of Squire's "Companion to the British Pharmacopoeia."

The editors of that volume say:—"Dymond states that nitrite of ethyl in rectified spirit decomposes from there being so much water in it, and that this is likely to account for loss of strength on keeping. Our experience scarcely agrees with this. When evaporation is prevented, we do not find the loss to exceed 6 per cent. (32 c.c. of gas from 5 c.c. reduced to 30 c.c.) in a month, and believe evaporation to be the chief cause of deterioration."

Now, however true it may be that the loss of ethyl nitrite is mainly due to evaporation, a distinct loss—in all probability due to the water present—is observable in all cases, and a very notable change is apparent in the only sample (No. 9) amongst those procured, which exceeds the limit of specific gravity given by the British Pharmacopœia.

Table of Results.

	Sp. gr.	I.	II.	Time of keeping	
				Months	
1	·8403	41·0	39·5	15	Solution of ethyl nitrite
2	·8398	41·0	34·0	15	Made from B.P. quantities of materials
3	·8414	39·0	37·0	14	Trade sample
4	·8392	39·0	33·5	14	" "
5	·8379	38·0	33·5	15	Made from purchased liquor 1 to 7
6	·8449	37·5	31·5	14	Trade sample
7	·8430	37·0	31·5	14	" "
8	·8437	36·0	28·0	15	" "
9*	·8477	36·0	14·5	15	" "
10	·8384	33·0	31·5	14	" "

* The only sample met with below B.P. sp. gr.

Mr. GROVES, on behalf of the President, thought that if Mr. Jones had given them some idea as to how to keep the spirit of nitrous ether without deterioration in the course of dispensing and retailing, their thanks would have been due to him. They all knew how liable it was to deterioration, and he supposed this was partly owing to evaporation and partly from mechanical means.

A Member, whose name was not mentioned, said he should like to ask Mr. Jones if the results were obtained under the same conditions of light and temperature after fifteen months. His experience was that if it was kept in stone-ware or coloured bottles, in a low temperature, it was less likely to deteriorate than if kept in the ordinary white-glass bottle.

Mr. SPILSBURY had made some experiments which would, perhaps supplement those made by the author of the paper, with the exception that, instead of being spirit of nitrous ether, B.P., his was a preparation of ethyl nitrite made by the nitrite-process of Mr. Dunstan. The sample was prepared in February, 1893, and in that month the analysis showed 6·89 volumes; in June, 6·79; July, 6·79; September, 6·76; in November or December (after being frequently opened, and the bottle being only half full) over 6 volumes per c.c. The sample was stored under similar conditions to those of Mr. Jones, in a light cellar. An additional precaution might be taken in storing the preparation by smearing the bottle-stopper with a mixture of paraffin, which greatly prevented the diffusion of gas.

Mr. UMNEY said that the father of pharmacopœial processes was Professor Redwood, and time after time at Bloomsbury Square they had heard him say that it was not nitrite of ethyl alone to which the beneficial effects were due, but aldehyde and other constituents were just as valuable. The father of the process had left them, but since then they had had the researches of Professor Leach, who had shown that the medicinal properties were wholly due to nitrite of ethyl (*Year-book of Pharmacy*, 1888. Leach on "Nitrite of Ethyl"). How long, he asked, were they to continue this old-fashioned pharmacy? He knew there were some pharmacists who, even to-day, still sold the old spirit of nitre. He hoped that in the next Pharmacopœia there would be put a definite solution of ethyl nitrite of fixed strength. He could not say how long such a solution would keep, and the Pharmacopœia recognised this and allowed a margin for loss. If they expected to get a definite spirit of nitre he thought they would be expecting a slice out of the moon. If they did not discard the old spirit, at least in the new Pharmacopœia the definite solution might be placed side by side with it.

Mr. LINFORD said that Mr. Umney would have considerable difficulty in educating the public to take to the new spirit. He had sold the 1885 article, but had had constant complaints of it and many samples returned.

Mr. WRIGHT said that there was a good reason for Mr. Linford's remarks, and he was sure that any pharmacist who sold the old-fashioned spirit of nitre, and who laid in a stock of the new article, would soon have the majority of it

returned and complained of. Spirit of nitre was employed for domestic purposes largely as a diaphoretic, and when they supplied the 1867 or 1885 article complaints constantly arose, and with justice, that it failed to give the beneficial effects of the old preparation.

The PRESIDENT said that Leach's results were clinical, and they should not lose sight of the value of clinical results. The Pharmacopœia did well in not paying too much attention to theory, though science tried to get rid of these old-fashioned remedies. He was old-fashioned pharmacist enough to believe that the old-fashioned spirit of nitre was different and in some ways better than the new ethyl nitrite.

Mr. WARD regarded the matter as one which ought to be settled for the peace and comfort of the pharmacist as well as the satisfaction of the manufacturer. He might give a note as to the variability of nitrite of ethyl. A sample examined on October 27, 1890, yielded 25 c.c. of gas per c.c. It was put on one side in a bottle about three-parts full until December, 1893, when 1 c.c. yielded 7 c.c. gas. Examined again in July, 1894, 4·5 c.c. of gas were obtained from 1 c.c. Now, this was pretty nearly as concentrated a solution as it was possible to obtain without having recourse to special means, and was a fair indication of the liability to change which marked the substance. It had been pretty well decided that the presence of moisture was to a very great extent an accelerating agent, and if a sample were free from moisture the liability to change was considerably reduced. Every pharmacist who purchased his spirit of nitre should insist on having the B.P. preparation, and not the '850 article which was somewhat extensively supplied. There was not, perhaps, much difference in the gravity, but the small amount of moisture present in the '850 article accelerated the decomposition. He had had his attention drawn to the case of a chemist prosecuted for the sale of spirit of nitre, which had a specific gravity of 0·859, and 5 c.c. of which yielded 2·6 c.c. of gas. Now, he would not say that the analyst or inspector who instituted proceedings acted very wisely. However, he managed to secure the condemnation of the article much to the distress of the chemist, who had very unwisely supplied the spirit after keeping it three years, believing that it would still be up to strength, and unaware, he declared in court, that the article was liable to change. Anything that would relieve pharmacists from the harassing and distressing interference from time to time of the Food and Drugs Acts inspectors would be a real boon.

Mr. PERRY began some reference to a paper he had published on the subject in 1885 or 1886, but the PRESIDENT interposed that on account of the length of the programme the time of the meeting should not be taken up with reference to work already recorded.

Mr. JONES, in reply, said the original motive of setting aside these samples was to find out how long one could keep the ordinary B.P. spirit if the best conditions were adopted. He had been frequently asked how long it would keep, and the best way to keep it. His answer was, Put it in your cellar, and have a nitrometer upstairs, and test it every day if necessary. (Laughter.) The samples were kept in the original bottles—ordinary commercial kind—in a not very cool cellar, lighted with a grating through which light could come.

NOTES ON THE GEOLOGY, BOTANY, AND RIVER SYSTEMS OF OXFORD AND NEIGHBOURHOOD.

By G. C. DRUCE, M.A.

During a lengthy and interesting lecture, illustrated by two fine geological maps of the county, Mr. Druce gave a brief account of the geology, river-drainage, and botany of the neighbourhood of Oxford. He followed the course of the various geological formations, and showed the influence thus exerted on the scenery and upon floral distribution. The dryness of the Thames basin was mentioned, and the course of the river, with its chief tributaries, briefly described. The plants found in the district, especially those of a medicinal character, were enumerated. These included *Atropa Belladonna*, *Hyoscyamus*, *Daphne Mezereum* and *D. Laureola*, *Helleborus fetidus* and *H. viridis*, *Rhamnus catharticus* and *R. Frangula*, and *Digitalis*. Their habitats were also given; and then the plants more peculiar to Oxford, such as *Thlaspi perfoliatum*, *Orchis simia* and

O. militaris, *Monotropa*, *Lathraea*, *Linaria repens*, *Cynoglossum sylvaticum* and *C. officinale*, and *Illecebrum verticillatum*, with the especial geological formations on which they occurred. Reference was also made to the work on the natural history of Banbury done by the pharmacist Mr. Beesley.

The PRESIDENT said they had all listened with the greatest pleasure to the marvellous epitome Mr. Druce had given them on the subject of the botany and geology of Oxfordshire. It had formed a most pleasant interlude in the reading of the Conference papers proper, and in the solving of the dispensing difficulties which had so much occupied their time. He thought it would not be out of the way to suggest that the Conference would do extremely well to appoint an evening lecture, such as that given by Mr. Druce, to be always given on the Tuesday evening in Conference week. Their heartiest thanks were due to Mr. Druce for the address, in which he had said so much in so few words. (Loud applause.)

ANIMAL EXTRACTS.

(Abstract.)

By C. E. STUART, B.Sc.

After some preliminary notes on the physiological hypothesis on which Brown-Séquard, Poehl, and others base the use of animal glandular secretions in medicine, the author pointed out that healthy animal tissues being aseptic, extracts which could be safely used, could be prepared if scrupulous attention were paid to cleanliness and antiseptic conditions. The knives and forceps used were to be sterilised by heat, glass and other vessels, as also the hands of the worker, by washing with 5-per-cent. carbolic acid.

Thyroid Extract.—The glands, best cut personally from the freshly-killed sheep, freed from cysts (of fatty, not purulent matter), and non-hypertrophic, were cleaned from fat, &c., sliced thinly, bruised, and for every lobe 1 c.c. of glycerine and 1 c.c. of sterilised water added. After standing twenty-four hours the dull-red thick liquid was strained off through fine calico. For hypodermic use water with 0.5 per cent. of carbolic acid was substituted for the plain water. A powder of good keeping qualities could be made by drying the expressed juice, mixed with sugar of milk, on glass plates.

As regarded the active principle of the thyroid gland, the author agreed with Dr. Gourlay that there were present nucleo-albumen, but very little proteid, no mucin, proteose, nor peptone. At the same time, he doubted the possession of any peculiar virtue by the nucleo-albumen. In accordance with the suggestion of Dr. G. Murray, the author made an aqueous extract of 100 lobes previously digested for weeks in absolute alcohol; the extract, evaporated under reduced pressure at 30° C., was poured into 10 vols. of absolute alcohol, the precipitated substance again extracted with water and reprecipitated. The final product weighed 0.792 gramme, and experiments upon its activity were being carried out by Dr. Murray.

Brain Extract.—The sliced and bruised brain of rabbits (weighing 73 to 11.7 grammes) was mixed with 1 c.c. of glycerine and 1 c.c. of $\frac{1}{2}$ -per-cent. carbolic acid per gramme, and after twenty-four hours' digestion strained with strong pressure through linen. The pinkish-white emulsion (sp. gr. 1.087) had been injected with good effect in neurasthenia, locomotor ataxy, and other nervous cases. It contained a little dissolved proteid and suspended protagon, lecithin, cholestrin, and cerebrin. Dr. Althaus (*Lancet*, December 2, 1893) suggested that its action was due to its nature as a highly specialised pabulum of nervous matter, and to the decomposition of the lecithin and protagon by the alkali of the blood yielding choline and fatty acids.

Spinal-cord Extract.—The cord (average weight, 4.68 grammes), obtained by cutting away the vertebrae and removing the arachnoid, was treated as the brain extract. Dr. Althaus had termed the product "Myeline alpha."

Spleen Extract.—The position of the organ was described (behind and across the stomach), its size given as $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long and $\frac{1}{8}$ to $\frac{3}{8}$ inch diameter, and average weight as 0.89 gramme. Each organ was rubbed with enough glycerine and $\frac{1}{2}$ -per-cent. carbolic acid (equal parts) to make 1 fl. dr. of extract, which had been used hypodermic-

ally (dose 10 minims) in leucocythemia, enlarged spleen, and Hodgkin's disease.

Suprarenal Extract.—The average weight of the suprarenal capsule was given as .25 gramme, and bruised in a mortar it had a yellowish-brown granular appearance. Prepared similarly to the preceding, the extract was used (dose 10 minims) in Addison's disease.

Pituitary-body Extract.—The small pink mass at the base of the brain (average weight .75 gramme), free from membrane, was treated as the brain and used in acromegaly.

Pancreas Extract.—The pancreas of the pig, carefully freed from fat, finely divided, and treated like brain extract, furnished a milky product.

Thymus Extract.—The gland from a young sheep or pig, treated as the brain, yielded a thin whitish extract, used in similar cases to the thyroid, but without much effect.

Kidney Extract.—The finely-chopped kidney, freed from excretive matter, was treated like the brain.

Bone-marrow Extract.—On the hypothesis that red blood-corpuscles are chiefly developed in the red marrow of bones an extract was prepared from the cancellous portion of the bones of the head and femur of the calf, macerating the mass for a few days in 10 vols. of glycerine, and filtering through glass.

Orchitic Fluid.—Sheep's testicles, deprived of outer membranes, macerated twenty-four hours in glycerine and boric acid (3 c.c. and 6 c.c. of a .5 solution to each gramme). The mixture was filtered through sterilised paper, and finally sterilised.

The PRESIDENT said that as animal extracts were demanded by the physician in the treatment of diseases, and as phenomenal results had been obtained by the use of one of them—thyroid gland—it became pharmacists to be able to prepare them in a satisfactory condition. They were working in an entirely new region, and in one of intense interest. How long it would be before any light was thrown on the subject he did not know, but it was still necessary for pharmacists to be able to produce anything which the medical man may require in the treatment of disease. They might sneer at these remedies and call to mind the ancient days when animal excreta, &c., were used as medicines, but the phenomenal results obtained by the use of other compounds justified the use of these. As to the care required in the preparation of these compounds, he could not use words strong enough to urge them not to depart in the least from the precautions recommended; the least decomposition might cause terrible results, as Woolridge has shown. They were not preparations to be trifled with in the manufacture, and pharmacists who prepared them must take the whole responsibility from beginning to end, and till they knew what was the active constituent, of which at present nothing was known, they must pay every individual attention in the manufacture.

Dr. RIDEAL said that he had thought that a test for the presence of ptomaines would ensure a knowledge of the glands being satisfactory for use. But he gathered from the paper that it seemed necessary to ensure also the absence of albumoses and peptones before considering the preparations satisfactory. If that was so, it was an important conclusion and of great value to those engaged in the preparation of such extracts.

Mr. GERRARD said that those who wished to prepare an extract for internal use might do so by simply carefully taking the glands, mincing and removing fat by a solvent, such as ether or benzole, spreading on sheets of glass, drying at a low temperature, and when dry either rapidly powdering and sifting or powdering by the aid of sugar of milk and carefully storing. Such a preparation was reliable and easy for the pharmacist to prepare, but could not be used for hypodermic injection. To prepare such products all the details described by Mr. Stuart must be carried out.

Mr. LLOYD WILLIAMS confirmed Mr. Gerrard's remarks as to the preparation of thyroid extract for internal use. He thought that the large demand for preparations for administration *per os* was due to the difficulty of preparing extracts for hypodermic injection.

The PRESIDENT, in reply to Dr. Rideal's question about

ptomaines, said that Mr. Stuart's remarks about the absence of albumoses and peptones were rather with a view to the elimination of the danger in an elementary stage, and before the preparation was put in the hands of medical men.

AN EXAMINATION OF LEONURUS CARDIACA.

By W. A. H. NAYLOR.

[Mr. HOLMES gave some introductory notes on this plant. He found it in a bed of spinach, and on looking up the history of the subject in the National Dispensatory, he found that the active principle was unknown, and as the name suggested cardiac properties, he thought its examination would be interesting, especially in view of the history of *Convallaria majalis*. In an old herbal of 1540 the plant was mentioned as possessing such cardiac virtues. It was a well-characterised plant, with wedge-shaped leaves; the upper members had three, and the lower five, lobes. It was not in many Pharmacopœias, though he had found it in one of the British Pharmacopœias. *Leonurus cardiaca* was widely distributed, growing in Europe from Sweden to the Mediterranean, also about St. Petersburg, while allied species were found in Asia Minor and America. According to one of the large herbalists to whom Mr. Holmes applied for information, the present consumption of the plant was about 1½ ton per annum, so that it could not be said to be unknown in medicine.]

The material for this examination was supplied by Mr. E. M. Holmes, curator of the museum of the Pharmaceutical Society, who had grown it himself. The method adopted for examination was, firstly, to press the fresh herb and extract the juice, adding 20 per cent. of S.V.R. to preserve; and, secondly, successively exhaust the marc left after expression with solvents, and to examine the percolates separately.

A. (1) *Examination of the Succus*.—This was evaporated by a water-bath, and the residue extracted with alcohol, part being soluble and part not.

The portion soluble in alcohol was found to contain a considerable amount of KCl; an intensely bitter uncrystallisable principle soluble in ether, chloroform, and alcohol, and insoluble in water and petroleum ether; an uncrystallisable alkaloid soluble in S.V.R., ether, and acidulated water, which may be purified, though the process is wasteful, by precipitation with potassio-mercuric iodide and decomposition of the precipitate by means of sodium thiosulphate. In addition the residue contained extractive indifferent matter.

(2) The portion insoluble in alcohol contained calcium phosphate and substances soluble in water. These were separated by precipitation with lead acetate, the lead being subsequently removed by H₂S. The precipitate consisted of tartrate, citrate and malate of lead, combined in the plant with calcium, together with a reddish-brown hard mass of a sour saline taste. The filtrate, after removal of the lead, contained pectinous substances, extractive matter, and a small amount of the previously-mentioned bitter principle. In addition there was present the potassium salt of an organic acid.

B. *Examination of the Marc*.—This was exhausted successively with S.V.R., ether, and water, and the extracts examined separately.

(1) The portion soluble in S.V.R. contained an alkaloidal substance similar to that found in the succus and separated by acidulated water. In addition, a fixed liquid oil soluble in ether, carbon bisulphide, and alcohol, and a resin soluble in chloroform. These were separated by petroleum ether. The residue consisted of traces of malic and citric acids and a resinous substance soluble in chloroform and identical with that obtained from the succus.

(2) *Ether Extract*.—This was found to contain more of the resinous body and a mixture of fatty and waxy substances containing some of the higher fatty acids. The extract was mostly soluble in petroleum ether.

(3) *Aqueous Extract*.—This contained nothing of any import except substances already mentioned.

The result may be summarised as follows:—1. Definite principles: KCl, Ca₂PO₄, and malic, citric, and tartaric acids. 2. Proximate substances: A bitter principle; hard resin, soluble in chloroform, insoluble in ether; soft resin, soluble

in both liquids; an alkaloidal body; the potassium salt of an organic acid; fixed oil; wax soluble in petroleum ether, and waxy matter insoluble in that liquid. 3. Extractives: One soluble in alcohol and water, two soluble in water only.

Mr. DRUCE opened the discussion by observing that the plant was mentioned as a British plant in Gerard's Herbal, 1597, where it was stated as growing in stony places about Oxford.

Mr. UMNEY believed Mr. Holmes had said he found the plant in an old *British Pharmacopœia*. Did he not mean an *English Pharmacopœia*? He mentioned it lest someone should waste time searching for it.

Mr. HOLMES: Yes; in a London Pharmacopœia.

Mr. LLOYD WILLIAMS pointed out that an American author had contributed an examination of the motherwort, but his results—as so often happened with American investigations—were not satisfactory. He would like to ask if Mr. Naylor had looked for a volatile oil, which the American worker had found, though he had made no reference to a fixed oil.

Mr. HOLMES: It is quite possible that the American plant was *Leonurus sibiricus*, not *Leonurus cardiaca*.

Mr. MARTINDALE had some time before sent an extract and juice of the plant to Edinburgh for pharmacological examination, but had not, so far, received any reply. Perhaps the paper now before them would waken up interest in the matter.

Mr. GERRARD observed Mr. Naylor had not mentioned that he had examined the plant for a glucoside. The bitter principle might turn out to be a glucoside. As to the residue represented as alkaloid, what amount of plant did it represent—the whole amount worked with, or only a part?

Mr. NAYLOR: Only a fraction.

Mr. GERRARD, continuing, said it sometimes happened that a plant, when worked upon in large quantities, yielded only quite small amounts of alkaloidal substances. He did not think, in such cases, it was worth while going any further with the investigation. It would be found that the active principle was some body other than the alkaloid.

The PRESIDENT thought that, in view of the amount of executive Conference work done by Mr. Naylor, they owed him much gratitude for finding time to bring before them a paper on work of that kind. (Hear, hear.) As to Mr. Gerrard's feeling that labour was wasted in separating minute proportions of alkaloid from a plant, he (the speaker) was rather inclined to look upon such work as of high scientific interest, and thought it would be a pity to throw away even only 5 grs. from 1 cwt. of plant.

Mr. NAYLOR, replying, said that after some little experience of what was generally known as plant-analysis, he had learned to be very cautious in speaking of any principle or constituent which he might have isolated as being in any sense definite. For instance, he knew very well this principle in question. He had managed to reduce it by various methods. At the same time, it gave a reaction with Fehling's solution, but he could not positively say whether that reaction was due to some impurity, or whether it was due to the body itself. The samples were taken from bulk, and he had quantities, in some instances, of the separate constituents mentioned. The samples shown might be taken as fairly representative ones. He did not know the amount of alkaloid which he had separated, but he thought it was quite sufficient to encourage one to extract a larger supply—say, ½ cwt. or 1 cwt. In reply to one observation, of course he had regard to the fact that it might be caffeine, but examination had shown that it was not identical with it.

THE CONDITIONS OF PAPAIN-DIGESTION.

By S. RIDEAL, D.Sc. Lond., F.I.C.

Since communicating some notes on papain-digestion to the Edinburgh section of the Pharmaceutical Society (*Phar Journ.*, April 7, 1894), I have had an opportunity of further studying the behaviour of this interesting vegetable ferment, and the fresh results which I have obtained seem to clear up some of the points which my earlier examination showed to be still doubtful. Although not printed in my former note on this subject, I think it desirable to state that the former

experiments, as well as those recorded in this paper, were carried out with the papain known as "Papain (Finkler & Co.)." This is the more important since, as insisted upon by Gamgee, papain resembles pepsin in being a substance which cannot at present be obtained in a pure state. All work, therefore, is based upon the relative activity of different specimens one with another, and with different brands of pepsin. The term "papain," although strictly belonging to the pure ferment, is also used to denote the mixture obtained from the inspissated juice of the papaw-fruit, and as an equivalent to papayotin, which seems to be another preparation from the *Carica Papaya* tree. The commercial papain (Finkler & Co.) used in these experiments appears to contain a uniform amount of active ferment, as the different samples I have examined do not differ very much from one another in digestive activity. In most of the earlier work with this ferment comparisons have been made with pepsin under conditions which are known to be conducive to the rapid digestive action of the animal ferment, ignoring altogether the fact that papain, from its mode of occurrence and general properties, may have conditions favourable to its action which are altogether different to those obtaining for pepsin. It has long been known, for example, that papain, unlike pepsin, digests in an alkaline fluid, and this fact alone shows that it is more strictly comparable to trypsin than to pepsin. Its analogy to trypsin cannot, however, be pressed too far, since it does not appear to possess any fat-splitting power.

In some recent experiments on the action of papain on milk and cottonseed-oil emulsion, I found that even after four hours at a temperature of 40° C. there was no evidence of the production of any fatty acid, so that, unlike trypsin, papain does not possess the power of hydrolysing fats. I have also been unable to find any information as to its action on the carbohydrates, although from its vegetable character one might expect it to possess some diastatic action. It would be interesting to determine whether any of the preparations of papain have any amylolytic action, as such an investigation would aid in determining whether there are several enzymes present in crude papain.

Although its hydrolytic action on fats and carbohydrates has at present been little studied, there is no doubt of the well-marked proteolytic action which papain possesses. It is the purpose of the present communication to define a little more closely the conditions which are the most favourable for this proteolytic action.

Influence of Time—Rate of Digestion.—In these experiments coagulated white of egg was employed as the material for digestion. The quantity of water present in the finely-rubbed sample was determined in the ordinary way by drying at 100° C. until the weight was constant. Weighed portions of the same sample were then transferred to wide-mouthed bottles fitted with corks, and three times the weight of distilled water added, together with 1 per cent. of papain. The bottles were then placed in a chamber heated to 37° C., and removed after different intervals of time, when the contents of the bottle were transferred to a muslin filter, washed, dried, and weighed. The following table shows the results obtained in two such complete experiments:—

Time, in Hours	Percentage of undigested albumen	
	Papain 20	Papain 21
	{ 8 grammes albumen 24 c.c. water 0.08 gramme papain	{ 15 grammes albumen 45 c.c. water 0.15 gramme papain
1	25	19.3
1½	23.8	10.6
2	22.8	7.6
2½	22.3	4.2
3	21.6	3.8
3½	20.9	3.2

It will thus be seen that, in both cases, in less than an hour, 75 per cent. of the coagulated albumen had been converted into a soluble form, and that at the end of three hours the digestive action becomes so slow that for practical purposes it may be regarded as completed at the end of that

time. It will also be noticed that although both these samples up to the end of the first hour had approximately the same rate of digestion, the action was pushed to a far greater extent by sample 21 than by sample 20. After this interval of time the slower rate observed with papain 20 was due to the fact that the albumen was coagulated in the bottles used, and thus exposed a smaller surface to the digestive action.

Influence of Temperature.—In these experiments, egg-albumen, coagulated and squeezed through wire gauze, was employed, and the bottles containing a mixture of 15 grammes albumen, 45 c.c. water, and 0.15 gramme ferment were kept for two and a half hours at the different temperatures given below:—

Temperature	Papain 26	Papain 27
	Percentage undigested	Percentage undigested
28° C.	68.6	65.1
32° C.	68.0	64.1
38° C.	67.2	63.2
40° C.	67.1	63.1
42° C.	70.0	63.7
48° C.	73.5	71.6

In both cases the maximum amount of digestion took place when the temperature was 40° C., whilst at higher temperatures than this the activity of papain rapidly diminishes. Between 30° and 40° the rapidity of the action gradually reaches its maximum.

It is interesting to note that the temperature at which the digestive action is most pronounced is approximately the temperature of the blood. This is a remarkable fact, and a coincidence which it is difficult to explain. Diastase, the other vegetable ferment which has been studied carefully, does not begin to lose its power of hydrolysing starch until the temperature of 63° C. is reached. I have not yet had an opportunity of examining bromelin, the vegetable ferment which appears to be most allied to papain, but it will be interesting to see at what temperature its activity is the most pronounced.

3. *Influence of the Amount of Ferment.*—Although 1 per cent of papain has a very marked digestive action, if the amount of ferment relatively to the amount of proteid to be digested be increased, there is a slight increase in the amount of digestion that takes place, as shown by the following table of results:—

Influence of the Amount of Ferment.
(5 grammes egg-albumen + 45 c.c. water.)

Amount of ferment in grammes	Percentage of ferment to proteid	Percentage undigested	
		Papain 32	Papain 34
.15	1.0	68.6	56.4
.25	1.7	63.0	52.9
.35	2.3	57.7	49.5
.45	3.0	55.7	46.5

There is, therefore, but little advantage to be gained by increasing the amount of ferment above 1 per cent. on the weight of the wet proteid to be digested.

4. *Influence of the Amount of Water present.*—In these experiments 5 grammes of egg-albumen, prepared as already described, were employed and .15 gramme of papain, with varying amounts of water. Digestion was allowed to proceed for three hours, at 40° C.

Volume of water in c.c.	Percentage undigested	
	Papain 35	Papain 36
25	59.4	44.2
35	64.6	48.7
45	67.1	50.0
55	71.5	55.0

It is, therefore, evident that the amount of water present has a retarding effect upon the proteolytic action, and that the digestion proceeds most rapidly, *cæteris paribus*, in concentrated solutions. In this respect papain digestion is very different from that of pepsin, as it seems established that peptic action takes place best when the quantity of water present is far in excess of the quantities employed in the above experiments.

5. *Influence of the Presence of other Substances upon the Rate of Digestion.*—In all the above experiments distilled water was the medium employed in which the digestive action took place. It has been even known that the presence of small quantities of hydrochloric acid and sodium carbonate accelerate the proteolytic action; but so far as I have been able to ascertain, no such experiments have been published upon the quantities which are found to give the most satisfactory results.

(a) To determine the influence of an alkaline medium on the action of the papain 15 grammes of egg-albumen were digested with 0.15 gramme papain in the presence of 45 c.c. of a solution containing various amounts of sodium carbonate and bicarbonate; sodium hydrate was also tried, but it was found, even in 0.25-per-cent. solution, to gelatinise the albumen, and render the fluid difficult to filter. The results with the two carbonates of soda are shown below:—

Strength of alkali	Percentage of albumen undigested in presence of	
	1. Sodium carbonate	2. Sodium bicarbonate
Per cent.		
0.1	68.7	58.5
0.25	63.3	56.4
0.5	58.3	45.7

For these experiments the same papain was used, and the digestion allowed to proceed for three hours at 40° C. They show that sodium bicarbonate is more favourable to the action than the neutral carbonate, and that the digestion is augmented with the increase of the bicarbonate up to .5 per cent. We have not used a stronger solution; but as doubling the amount of bicarbonate has only increased the amount of digestion from 44 to 54 per cent., a further addition of bicarbonate is not indicated.

(b) *Acid Digestion.*—In normal gastric juice there is believed to be about .3 per cent. of free hydrochloric acid (Szabo, *Zeitsch. f. Physiol. Chem.* i. p. 140), but in artificial digestion Brücke showed that, *cæteris paribus*, a solution containing 0.086–0.088 per cent. was the most favourable strength for the digestion of fibrin, and 0.12–0.16 for coagulated egg-albumen. Küane and Chittenden, on the other hand, state that as high as 0.5 per cent. of hydrochloric acid may be used with advantage. Acetic and tartaric acids act more feebly (Gamble, *Physiol. Chem.* vol. ii. p. 84). I have tried the influence of these three acids, and boric acid on digestion by means of papain, with the following results:—

Strength of acid by weight	Percentage undigested			
	Papain 2l. 15 grammes egg albumen, 0.15 gramme papain + 45 c.c. acid			
	Tartaric	Boric	Acetic acid, B.P.	Hydrochloric, B.P.
0.1 per cent.	61.3	47.5	65.4	70.1
0.25 "	53.2	47.3	56.0	51.5
0.5 "	50.7	43.7	53.9	10.2

It will be seen (1) that with each of these acids the amount digested increased with the amount of acid present, (2) that in the presence of boric acid the quantity of this acid present must give least variation in the amount of digestion, and (3) that with 0.5 per cent. acid hydrochloric acid the maximum amount of digestive action obtains. I hope to further extend these experiments, with a view to ascertaining

whether the differences observed are due simply to the differences in the relative acidities of these liquids.

In a second series of experiments with a different sample of papain, the following figures were obtained:—

Strength of acid	Percentage Undigested		
	Tartaric acid	Boric acid	Hydrochloric acid
0.1 per cent.	73.3	74.7	78.2
0.25 "	71.7	73.3	34.2
0.5 "	65.4	71.6	11.8

The same papain, with distilled water, under the same conditions, left 78.0 per cent. undigested. It is, therefore, evident that 0.1 per cent. of any of these acids has little influence on the amount of digestion.

(c) *Influence of Salt.*—M. Dastre has lately pointed out that the halogen salts in large quantities—sodium chloride, sodium peroxide, and ammonium chloride—induce a digestive change in fresh proteids in the absence of any ferment. In gastric juice the amount present is about .4 per cent. With papain an increase of the amount of salt seems to slightly retard solution; thus:—

Percentage Undigested after Three Hours in Presence of—

0.1 per cent. NaCl sol.	0.25 per cent.	0.5 per cent.
52.2	54.3	60.8

I have also tested the behaviour of formaldehyde, which, under the name of formalin, is being introduced as a preservative, and is therefore likely to be present in foodstuffs, required to be digested. According to Loew (*J. Prakt. Chem.* [2] 37, 101) formaldehyde at 40° renders diastase inactive. With papain it has an arresting effect; thus:—

Percentage Undigested in Presence of a Solution of Formaldehyde.

0.01 per cent.	0.1 per cent.	1.0 per cent.
65.9	78.8	83.1

Papain can therefore be used as a digestive ferment in acid, alkaline, and neutral solutions. Its activity is diminished at temperatures above 40° C., and is most pronounced in the presence of small quantities of liquid. No appreciable advantage is gained in using a larger amount than 1 per cent. by weight of the proteid in its natural state. Its activity is most pronounced in the presence of a hydrochloric acid solution of about .5 per cent. strength, whilst for alkaline digestion a .5-per-cent. solution of sodium bicarbonate gives the most satisfactory results. After from three to four hours the rate of digestion becomes very slow, so that for practical purposes this length of time is to be recommended.

In a set of experiments, using 15 grammes of coagulated egg-albumen (= equivalent to 2.267 grammes of dry albumen, and containing .340 gramme of nitrogen), the amounts of nitrogen rendered soluble in three hours by 0.15 gramme papain in the presence of (1) 45 c.c. of 0.5-per-cent. hydrochloric acid, (2) 45 c.c. of 0.5-per-cent. sodium bicarbonate solution, and (3) 45 c.c. of water were as follows:—

	HCl	NaHCO ₃	Water
Weight of nitrogen in grammes ..	0.193	0.121	0.0998
Percentage of soluble nitrogen ..	57	35.6	29.3

It seemed of interest to compare the action of pepsin with that of papain under the conditions which are favourable to the action of papain—viz., in the presence of a small amount of liquid. For this purpose two samples of pepsin were employed, and the amounts of digested minced meat-fibrin and egg-albumen both determined.

The following results were obtained:—

1. Meat-fibrin—weight digested.—Quantities: Meat-fibrin,

10 grammes; ferment, 0.1 gramme; distilled water, 30 c.o.; time, thirty minutes; temperature, 38° C. :—

		Pepsin P.D.	Pepsin H.S.	Papain 21
		Per cent.	Per cent.	Per cent.
A	.. ..	12.18	11.02	15.34
B	.. ..	20.9	17.2	41.1

2. Egg-albumen—weight digested (conditions the same with constant shaking) :—

		Pepsin P.D.	Pepsin H.S.	Papain 21
		Per cent.	Per cent.	Per cent.
A	.. ..	20.16	20.94	20.92
B	.. ..	14.0	14.7	14.5

Under these conditions the papain gave the best results with meat-fibrin, whilst with egg-albumen the amount of digestion was intermediate between that given by the two pepsins examined.

The PRESIDENT then invited discussion.

Mr. REYNOLDS asked whether it was possible, as stated, to use papain for dissolving diphtheritic membrane.

Mr. UMNEY said it was unfortunate that the two pharmacists who had worked on papain—Messrs. Benger and Dott—were absent. If he remembered rightly, their statements clashed with those of Dr. Rideal. Dott stated that papain had no peptonising power and but little action at the temperature of the blood. Finkler had stated that papain would digest living tissue, and possibly it might be used as Mr. Reynolds had stated.

The PRESIDENT thanked Dr. Rideal for his valuable paper, and said that it was remarkable the power, substances such as papain possessed of digesting such enormous quantities of material, and remarked that it suggested the idea that possibly they might have some similarity to the catalytic agents of chemistry.

Dr. RIDEAL, in reply, said he was not a physician, and so could not answer Mr. Reynolds's question. In reply to Mr. Umney's remarks about the discrepancies between his work and that of Dott he said that these depended entirely on the conditions followed. The conditions under which papain works best were not favourable to the action of pepsin, and *vice versa*. Pepsin worked well when largely diluted; papain hardly acted at all under those conditions. If the conditions mentioned in the paper were followed, it was possible to obtain good results.

It was now past the usual hour for adjournment, and the Conference rose for lunch, immediately joining a large party in the quadrangle of Balliol for the purpose of having a photographic group of the members taken.

THE AFTERNOON'S PROCEEDINGS

began nearly half an hour late, and the attendance was the smallest at any time during the meetings. There were barely twenty members present.

The first paper taken was a "Note on Coconut Stearin as a Basis for Suppositories," by C. J. S. Thompson, and this was read by Mr. W. A. H. Naylor, in the absence of the author.

COCOANUT STEARIN AS A BASIS FOR SUPPOSITORIES.

By C. J. S. THOMPSON.

The suggestion to utilise coconut stearin as a basis for suppositories and pessaries was made by Brady in a paper read before the Pharmaceutical Society in 1866 on "Medicated Pessaries and Suppositories."

For this purpose he recommended the following formula:—

Coconut stearin	.. ..	9 oz.
Lard	.. ..	1 "
Oil of pimento	.. ..	20 minims.

The essential oil was added to prevent rancidity, and the lard as a tempering-medium. This base, the author stated, 'will keep uncharged for any reasonable length of time,

and leaves little to be desired." Mr. Thompson had found it much too soft, as it melts at 82° F., and the product when set will scarcely bear handling.

In order to form a satisfactory base for suppositories the addition of some more solid body is necessary, and the author, after trying several substances, had found white wax answer the purpose best. He recommended:—

Cocoanut stearin	.. ..	4 oz.
White wax	.. ..	340 grs.

Melt together with gentle heat over a water-bath.

The product is of a firm and fairly hard consistence, with a melting-point of about 98° F., becoming solid at 64° F., and will be found admirably adapted for a suppository-base. The melting-point may easily be lowered by using less wax. It mixes well with vegetable extracts, does not go soft on keeping, does not become rancid when in contact with metallic salts, and cools more rapidly than cocoa-butter. It is also cheaper.

Suppositories have been prepared with this base from all the B.P. formulæ, also with belladonna, hamamelis, carbolic acid, boric acid, and many combinations; and in each case it has proved most satisfactory.

The PRESIDENT said that the justification for this paper was to be found in a paragraph in "Squire's Companion" stating that this substance was preferable in cold weather. His own impression agreed with that of Brady's, that cacao-butter was an excellent basis, and he had yet to learn that the temperature of the body varied in winter and summer. He had found by experiment that there was practically no difference between the melting-point of cacao-butter suppositories after being kept for some time in ice and those kept at the ordinary temperature. Possibly the slight oxidation of the surface might retard the time of melting slightly, but cacao-butter was an ideal base—it did not become rancid nor change on keeping, and could be handled at all temperatures obtaining in England; while stearin suppositories had to be made of different consistency according to the temperature at the time. The only change in the base that had been ever suggested since Brady's paper in 1866 was with regard to suppositories designed for India, and the suggestion was to add a little wax to raise the melting-point; but he had never met with a suggestion to lower the melting-point, and did not think it was required. As to the question of cheapness, he would say, Use economy if you like, but that cheapness had nothing to do with pharmacy. (Hear, hear.) Brady had shown years ago that German cacao-butter was better than French, and French than English, but the English to-day was perfectly pure, and formed an ideal base. The author was doubtless right in bringing up this subject, especially as the question had been raised in "Squire's Companion," but he was sorry to see any change of basis suggested. Stearin was very liable to vary, while cacao-butter was absolutely stable and definite. The question of price was unworthy of consideration. (Applause.)

Mr. GERRARD said that there had never yet been presented a base which equalled cacao-butter. On one point he differed from the remarks of the President, and that was with regard to the rancidity of cacao-butter. His experience was that it did become rancid and changed colour, which was evidence of the decomposition. If cacao-butter be kept for a month exposed to light and air it lost its yellow colour, and gave a distinct rancid odour, and it was strange indeed if it were not so. He admitted that it was not so prone as other fats to become rancid, but it did so. His attention had been drawn a short time ago to a sample of stearin of a beautiful yellow colour, and which was sent into the market as "coco's" butter, and was used in confectionery. He had experimented with it, and had come to the conclusion that it was not adaptable for a suppository-base. The stearin base speedily changed, and became rancid sometimes even in the short space of twenty-four hours.

Mr. MARTINDALE looked upon ol. theobromæ as a typical fat for making suppositories. The sample of cocoa stearin sent round was nice enough, but the disagreeable odour of the substance when rancid made it very objectionable in use. It was true that cacao-butter became slightly rancid, but it was never disagreeable.

Mr. UMNEY's experience was not so great in this matter as that of the President or of Mr. Gerrard, but he agreed with the last three speakers that we had in cacao-butter a good sound basis. At one time the substance could not be obtained readily in a pure condition, but the public taste in cocoas had so far advanced in favour of non-fatty kinds that makers could now place hundreds of tons of genuine cacao-butter on the market. There was one firm in London also that could supply the butter in the natural state. The quantities sent to the market were surprising. The President had said that the substance could be obtained within $\frac{1}{2}^{\circ}$ of the melting-point of the pure substance. Well, his own impression was that samples within 1° or 2° of the standard melting-point could be obtained without any difficulty. The pharmacopœial limits (between 86° and 95° F.) were much too wide, encouraging rather than checking sophistication. A variation of 1° was sufficient for pharmaceutical purposes.

Mr. MARTINDALE pointed out that the cacao-butter required dehydration by heating.

The PRESIDENT told an anecdote of olive oil, which a friend of his had to supply at an absurdly low price. He took 30 galls. of colza oil, took out 1 gall. and replaced it with olive oil. This oil was invoiced as "olived" oil at the price required, and gave satisfaction. In this way the chemist, as he put it, retained his customer, and secured a larger profit. For his own part, he knew nothing about these things; they had nothing to do with pharmacy. He had never found the smallest difficulty in obtaining cacao-butter which would melt within one or a half degree. The surface oxidised, of course, but the fat did not become rancid, in the sense of producing irritating acids which would make it inapplicable in the sensitive rectum. It was as safe to use in suppository made with it after one year, two years, or so far as he knew, ten years after making. Any sophistication in the fat was probably due to the large margin allowed by the Pharmacopœia. Some years before he had had complaints from South America that the cacao-butter was not pure. Well he knew that fat, and where it came from, and what it was, and the only explanation he could arrive at was that the other person had tampered with it. Anyhow the customer was lost.

NOTE ON PHOSPHORUS PILLS.

By R. H. PARKER, F.C.S.

Phosphorus pill-mass, prepared with a fatty or resinous basis, beside being troublesome to prepare, difficult to preserve, and in some cases impossible to digest, is often found inconvenient at the dispensing-counter on account of its bulky character and its disposition to produce crumbly masses when combined with other ingredients. Pills freshly prepared with a solution of phosphorus in carbon bisulphide diffused through liquorice-powder are not open to these objections; it seemed, however, desirable to determine whether such pills are permanent, and contain the full amount of unoxidised phosphorus.

I will first describe in detail the exact method adopted in preparing, for example, two dozen pills:—

Phosphorus	the prescribed quantity
	for 24 pills
Carbon bisulphide	30 minims
Liquorice-root, in powder	24 grains
Glycerine	4 minims
Tragacanth gum, in powder	2 grains
Syrup	a sufficient quantity

Dissolve the phosphorus in the bisulphide; pour the solution upon the liquorice-powder in a pill-mortar; stir uniformly within the smallest possible space, by means of a spatula, until the solvent is nearly evaporated. No portion should be allowed to assume an appearance of dryness. As soon as the mixture becomes nearly solid, and while still moist with bisulphide, add a sufficient quantity of syrup to form a soft pill-mass, and incorporate quickly until homogeneous. Any other ingredients prescribed may now be added *secundum artem*, and the mass divided into twenty-four pills without undue exposure. No coating is necessary.

Not finding a recorded method for the determination of free phosphorus in pills, I decided to try extraction with carbon bisulphide, oxidation to phosphoric acid, and final titration with standardised uranium solution. This method gave very fair results. A solution of uranium acetate was

prepared and titrated against sodic phosphate; its value was found to be 1 c.c. = 0.002298 phosphorus.

Experiment I.—0.2 gramme phosphorus was oxidised with nitric acid in presence of a fragment of iodine, evaporated until nitrous fumes ceased to be evolved, diluted with water, slight excess of sodium bicarbonate added, then acidified with acetic acid, and made up to 229 c.c. with water. Of this solution 40 c.c. = 15.1 c.c. uranium solution—*i.e.*, 0.1986 phosphorus found.

Experiment II.—0.0472 gramme phosphorus was dissolved in carbon bisulphide, evaporated to dryness, the residue oxidised, and an acetic solution prepared as in Experiment I., diluted with water to 50 c.c. Of this solution 20 c.c. = 8.1 uranium solution—*i.e.*, 0.0465 phosphorus found.

Experiment III.—0.4 gramme phosphorus in 2 c.c. carbon bisulphide poured on 6 grammes of liquorice-root powder, and made into 100 pills in the manner described in the early part of this note. Ten of these pills were kneaded in a glass mortar with several successive quantities of carbon bisulphide, the mixed solutions evaporated to dryness, the residue oxidised, an acetic solution prepared as before, and made up to 50 c.c. with water. Of this solution 20 c.c. = 6.7 c.c. uranium—*i.e.*, 0.0385 phosphorus found. The remainder of these pills, examined in a similar manner at intervals of three months, showed practically no diminution of phosphorus. A sample of pills is on the table, prepared as already described, each containing $\frac{1}{10}$ gr. of phosphorus, and without any kind of coating; they have been kept in an ordinary pill-box, occasionally opened, and the pills handled since January, 1889—a period of nearly six years. They evidently contain the phosphorus exactly as when first made, for the slightest superficial scratch still produces phosphorescence, and a central section exhibits the same phenomenon over the entire surface. These pills rapidly disintegrate even in cold water, and without the assistance of massage.

The conclusions are obvious—that phosphorus pills may be easily prepared by this method without material loss or oxidation, that they are permanent, and that no coating is necessary for their preservation.

The PRESIDENT invited discussion, and

Mr. JOSEPH INCE at once responded. He congratulated Mr. Parker on his paper. There were very many formulæ at present for this particular preparation, and as far as he was concerned he thought that nothing ought to be admitted containing phosphorus or similar preparations unless entire solution was effected. It was not right, not pharmaceutical, and not scientific to allow such to enter into combination except in the state of perfect solution. The official method of the B.P., if followed with great care and attention to temperature, would produce a fairly good result. He objected to that method altogether, because the phosphorus itself was not combined from a perfect state of solution. In the case mentioned they had the first requisites and essentials for success and safety.

Mr. MARTINDALE had given attention to this subject for the last twenty-five years, and he preferred to keep to the solution always. The form he devised some twenty years ago was to dissolve the phosphorus and the substance in cocoa-butter, after it was made in a 1-per-cent. solution. It was then easy to roll out the pills, and the result gave as correct a condition of phosphorus as could be administered. It was easily digested, and the whole action of the phosphorus was produced therapeutically. Mr. Groves had suggested to him a method of preparing the pill by emulsifying the phosphorus, and then, as in Mr. Parker's process, by dissolving in bisulphide and adding the yolk of egg and a little chloroform to prevent oxidation. The emulsification of the bisulphide solution with yolk of egg was very quick and very complete. Mr. Parker had said that his phosphorus pill would keep any length of time. That had not been his experience. On April 14 last year he made some, and, although they had been kept in bottles, he was afraid they were now completely oxidised, and that there was no trace of phosphorus about them. Phosphorus pills, he held, should always be freshly made.

Mr. GERRARD remembered the many difficulties he had experienced in getting a satisfactory mass, and had sug-

gested common resin as a solvent. This was improved by Mr. Abraham, of Liverpool, who used balsam of tolu, and this was taken up by the pharmacopœial authorities, and the method introduced as the official process. Since that time many improvements had been made. Mr. Martindale had done excellent work on the subject, and the pill made by his method was very satisfactory, but a little difficult of manipulation. If Mr. Parker had looked up the *Year-books of Pharmacy*, he would have seen, in the volume of 1878, a process by him (the speaker), similar to that recommended by the author—viz., by solution in carbon bisulphide mixed with tragacanth and tragacanth paste. He did not see any great difference between this process and that brought before them to-day.

A Member said that the point of the paper was not one of making the pills, but as to the way in which they kept. When small quantities of phosphorus were required, he preferred to dissolve phosphorus in carbon bisulphide and add that to a fat basis, preferably to suet, with a little vaseline and kaolin to make it sink in water. He found pills from this mass made up with fat rolled out well and kept their shape.

Mr. LLOYD WILLIAMS was specially interested in the paper, because it was contrary to all received opinions as to the stability of phosphorus in pills. He was astounded, therefore, to hear that a preparation of phosphorus kept six years still exhibited phosphorescence. He had seen the suggestion made that amorphous phosphorus should be used, since its therapeutical effects were the same. He had scouted the idea at the time, but would like to hear if anyone present had had any experience on the point, as, if the medical action was similar, the amorphous substance would seem to have certain advantages.

Mr. BURNETT remembered, some years before, dispensing a prescription ordering 2-grain doses of amorphous phosphorus three times a day. At first sight he was at a loss to know how to deal with a dose apparently so considerable, but reference to the physician led to the confirmation of the prescription, and the pills were dispensed repeatedly, as written, without any ill effect being recorded.

The PRESIDENT, while not wishing to summarily cut short the discussion, said it was his experience that life was not long enough to justify a continual return to rudiments. As early as 1876, a process had been given for preparing phosphorus pills by solution in carbon bisulphide and mixing with soap and guaiacum. This formula—the same in principle as that suggested by the author—had been, he believed, reproduced in the "Art of Dispensing," and used by thousands of pharmacists who wished to save themselves the trouble of going back to rudiments and re-examining the principles of making phosphorus pills. The pills could not, of course, be expected to keep indefinitely: that phosphorus pills should be made on the other side of the Atlantic and sold on this side was, of course, absurd. (Applause.) At the same time it was impossible to apply the analogy of food-supply suggested by Mr. Martindale. To put the analogy on all fours, it would be necessary to make up only one dose, and repeat the process in four hours. (Laughter.) When this paper was announced he had asked his laboratory assistant to examine the oldest specimen of phosphorus pills they had. Well, the result, given verbally, was that the pills were readily soluble at the temperature of the stomach, and consisted practically of unchanged phosphorus. He would submit, while thanking Mr. Parker for the work he had done on the subject, that the time could not be wasted in going back on these rudimentary subjects while there were such great things to be studied and so many great problems to be solved.

Mr. PARKER, in reply, said that Mr. Martindale's formula was satisfactory so long as it was not combined with other substances, but having a fatty basis it had a tendency to give crumbly masses, while his own formula made a mass which could be readily combined with any other substances. It was essential to have the phosphorus in solution at the time of admixture, and he made the solution in carbon bisulphide into a mud with liquorice-powder, and so got the phosphorus evenly distributed through the mass, which readily disintegrated on placing in water. He had disclaimed any intention of novelty for his formula, his object was merely to satisfy himself as to the safety of dispensing pills by this formula. Amorphous phosphorus was said to

be inert, and, if free from any other form of phosphorus, the probability was that it was inert. Mr. Martin had complained of his returning to the rudiments of pharmacy; had he (Mr. Martin) published his experiments, he (the speaker) would have been able to save the time of the Conference, and perhaps to discover a new element. (Hear, hear.)

THE NOMENCLATURE OF OFFICIAL REMEDIES.

By JOSEPH INCE.

The author's reflections were offered in view of the advent of an Imperial Pharmacopœia, and were in part prompted by the fact that we have already in the body of the Pharmacopœia several words which have been left as indeclinable, while the Addendum is an evidence that their number is on the increase. This reflects on the scholarship of the day, and embarrasses the prescriber, who has to frame declensions of his own. Mr. Ince would leave untouched the whole series of undeclined words, such as *elemi*, *benchn*, and *catechn*. Tolu cannot be included, for it is only used as an adjective in the Pharmacopœia. But it is reasonable to expect that latinised terms which obviously belong to definite declensions should follow the common rules of construction. On the threshold is *liquor gutta-percha* (perhaps an oversight). The U.S.P., recollecting *mensa*, æ, gives *liquor gutta-perchæ*.

It has long been an accepted rule that neutral principles should end in *inum*, and that the English equivalent should end in *in*; while alkaloidal principles should be made to end in *ina*, for which the English equivalent should be *ine*.

This arrangement has proved a great gain, and it was the more to be regretted, therefore, that certain deviations crept in unawares. Aloin, correctly anglicised aloin, is as much entitled to be *aloinum*, as *benzoïnnum*, *anglice benzoïn*. Pyroxylin, the type of an *inum* word, is probably a misprint for pyroxylinum, but for pepsin no such allowance can be made; it should be *pepsinum* (not *pepsina*, alkaloidal form), and would cease to be an anomaly. So, too, if we say, on principle, *ergotin*, *paraffin*, and the like, because the Latin form is *ergotinum* and *paraffinum*, we are scarcely at liberty to write *gelatine* from *gelatinum*, and *glycerine* from *glycerinum*. The author recommends that three common forms of declension should be followed in cases where they may be required:—

1. Neuter nouns ending in *al*. (Third declension.) Example, *Animal*, *animalis*.
2. Neuter nouns ending in *ol*. (Third declension.) Example, *Alcohol*, *alcoholis*.
3. Masculine nouns ending in *o*. (Third declension.) Example, *Sapo*, *saponis*.

Other nouns at present taken as indeclinable, as *amyl* and *sumbul*, are open to discussion. Uniformity would necessitate the writing of *syrupus chloralis* for *syrupus chloral*, and *sulphonal* would follow the same rule. Meanwhile, the prescriber should write *sulphonalis grana quindecim* when he would indicate the dose.

If guided by the Pharmacopœia, we said—

Camphoræ (alcoholic solutæ) ʒi.

or—

Camphoræ (alcoholis ope in pulv. redact) .. gr. viij.

—surely the title *emplastrum menthol* should give place to *emplastrum mentholis*, and *thymol*, with all companion words, would follow suit.

Former editors have foreseen the difficulty which occurs in *matico* and *pimento*, and have latinised both as *infusum maticæ* and *aqua pimentæ*. Let them stand, especially the latter, which comes from *pimenta*; but it seems advisable, in anticipation of the future, that other or new terms which may resemble *sapo* should have the same declension, while *kino* and *cusso* might obey the same rule. If we say *linimentum saponis* and *cataplasma carbonis*, why say *tinctura kino* and *infusum cusso*?

The PRESIDENT having invited discussion,

Mr. MARTINDALE rose, and asked what was the objection to indeclinable words such as *menthol*, *sulphonal*, &c. He thought it was barbarous to decline them, and that the custom generally when words were taken from foreign languages was to keep them indeclinable. What was the object in making them declinable? When they occurred in prescriptions they understood perfectly well what was intended,

even though it had not the classical termination. He thought that words ending in -yl, -al, -ol were better indeclinable. As to gelatine and glycerine, they followed the common commercial name and not the scientific one as set down in Watts' Dictionary of Chemistry.

Mr. ATKINS said that, assembled as they were in that great hall where Latin and Greek received most strict and careful definition, the thought arose that there should be no such thing as they were wont to call Dog Latin, and that they should be up to date, and that the Latin of the Pharmacopœia and of the practitioner should be in harmony with the dictates of classical scholars. (Applause.)

The PRESIDENT thanked Mr. Ince for his valuable paper, and said that the limited discussion showed, he thought, that they were quite willing to sit at the feet of Mr. Ince on classical subjects; and he hoped that the Pharmacopœia authorities would do as they did, and render the Latin in that work in accordance with recognised rules. (Applause.)

Mr. INCE, in reply to Mr. Martindale, said he failed to see the advantage of drifting along without a guide as they had been doing. They must not allow "Classicality" to run too far, but he had in the paper especially confined his remarks to suggestions likely to prove useful. (Hear, hear.) Why should words which had a termination admitting of declension not be declined? On this point pharmacists should lead the practitioner, and not be led by them. In prescriptions a particular ingredient had to be put in a particular case, and it was necessary for the physician that words should be declinable, so that his prescription might be made clearer. It was more especially of advantage to students. And why should they not do in their pharmaceutical Latin what they expected the student to do in his studies? (Hear, hear.) All he asked for was that the ordinary grammatical rules might be applied to such words as had the necessary inflexion.

ENGLISH MEDICINAL RHUBARB AND HENBANE.

(Abstract.)

By RICHARD USHER.

Medicinal rhubarb was introduced into England, according to Parkinson, in 1629, but the first experiments in its culture and preparation for medical use appear to have been made in 1762, when a quantity of seed was sent from Russia by Dr. Mounsey, from which period till about 1800 it was grown in small quantities by scientific men, after which it was cultivated at Banbury on an increasing scale. The author's plantations of rhubarb, now extending over forty acres, were thus referred to in the *Transactions of the Society of Arts*, in 1789:—"The Society, in consideration of his merit, and to promote, as much as in them lies, the growth and cultivation of so valuable a drug, voted their silver medal to Mr. Hayward as a bounty." In 1794:—"The following accounts and certificates respecting the growth and cure of rhubarb have been received; the gold medal, being the premium offered for cultivating the greatest number of plants, was adjudged to Mr. William Hayward, of Banbury." The following is the testimony of Dr. Pereira:—"In 1789 Dr. Hayward obtained a silver medal, and in 1794 a gold medal, from the Society of Arts, for the cultivation of English rhubarb." Dr. Hayward died in 1811, and the plants were purchased by the late Mr. P. Usher.

In 1798, rhubarb of British growth was used at St. Bartholomew's, St. Thomas's, and Guy's Hospitals, and was experimented on at several others. It was also reported in favour of by many eminent medical authorities. If, at a later date, the prejudice against English rhubarb increased, other causes may explain this. One may have arisen from the partial introduction of new varieties of the plant. From the earliest period of its history, there appears to have been a confusedness in the evidence as to its real character, and whether foreign rhubarb was produced from the *Rheum palmatum* or the *Rheum undulatum* remained for many years an unsettled question. At present, in addition to these varieties, we have a supply afforded by *Rheum officinale*, derived from the plant introduced into this country in 1867 by the late Daniel Hanbury, as a source of the true Asiatic rhubarb. As far as the question relates to rhubarb grown in Great Britain, the stronger probability is that, after it was imported, several varieties were produced by repeatedly propagating from seed, when a discrepancy was observed at variance with the earliest descriptions recorded. Mr. Usher

has, for a long time, avoided the use of seed altogether. It is a fixed trait in the cultivation of medicinal rhubarb, as it is in most bulbous plants, that if produced from offsets only, it ceases to produce seed, and if raised from seed, each succeeding generation produces seed also, adding variety to variety almost indefinitely. Assuming that the plant degenerated in consequence of seed-propagation, it is equally logical to infer that, the causes having ceased which led to its deterioration, it has now regained its specific distinctiveness, and is not likely to diverge again into any transition from its central type. It is believed that a powerful reaction has taken place in its favour since the plant has been restored to its primitive form of development, for there is ample testimony to this, not only in the increased demand for it at home and abroad, but in the evidence of eminent medical practitioners. Improvements have also been made in drying the drug by applying a strong current of air, whereby the root is rendered less porous, and approximates more closely to the foreign article. A large amount of the trimmed rhubarb has for years been shipped abroad, and the increase in the English trade is also considerable.

Henbane.—Through some erroneous impression respecting this plant, the first year's growth is spoken of as the annual, than which nothing can be more palpably wrong, as the two articles when produced for use vary as essentially in their external appearance as in their constituent properties, applying this simple test only—that the annual plant when dried consists both of leaves and blossoms, whereas the first year's growth of the biennial must necessarily consist of leaves only. Assuming that when the second year's growth of the biennial plant cannot be procured, recourse must be had to the first year's growth as a substitute, the Pharmacopœia should have made known the comparative strength of the latter. If in the use of the two articles the same instructions are carried out—namely, to use 2½ oz. of the dried plant to a pint of tincture—and one should prove to possess two or three times the strength of the other, the result may be serious. We require a new definition altogether of the plant when dried for use. Instead of making two divisions only as at present, annual and biennial, it should be classified as follows:—

- Biennial henbane of second year's growth.
- Biennial henbane of first year's growth.
- British annual henbane.
- German henbane.

These are arranged in the order of their value. The British annual and the German, although extensively used, are so thoroughly undeserving notice that they require mention only to guard the public against their use altogether. The leaves of the British annual will be found much shorter, and occasionally will be seen a pure primrose-colour blossom, which never occurs in the beautifully streaked blossom of the biennial; but the very fact of the appearance of blossom in the sample, that blossom being generally so much like the blossom of the biennial, leads to the erroneous conclusion that it is the same plant.

The difficulty of obtaining a supply of the biennial, except at an exorbitant price, is now obviated, as methods have been devised for preserving the plant from the attacks of insects, by which it is very liable to be injured.

The PRESIDENT, in opening the discussion, said he knew he was departing from the usual rule in not inviting discussion before he made his remarks. They were a scientific body, and it was an unwritten rule that nothing approaching advertising, or anything of that kind relating to specialities or the property in specialities, should come before the Conference. But he ventured to think that this paper, although it was written by a grower of herbs in the county, was of particular value. He was glad they had it, and he hoped that whenever the Conference in the future met in a county noted for the production of any natural product of this or other nature that they would have a conference-paper on the subject. The historical account which Mr. Usher had given of rhubarb, as well as the facts he had recorded as to its cultivation and production from offshoots instead of seeds, were of great value. He might express the hope that the English farmer, who had been in such a bad way, might see his way to take up its cultivation. Henbane, also, was a drug of extreme importance, and he thought everyone in the

hall would support him in saying that the ordinary chemical estimation of the value of henbane was doubtless due to the fact that there have been different varieties of henbane worked upon and submitted to medical men. If the henbane which was defined in the Pharmacopœia was difficult to procure, then there was no doubt that some of these other varieties named could be substituted for it. Their thanks were due to Mr. Usher for his valuable paper. (Applause.)

Mr. DRUCE, invited by the President, observed that if one began to get hybridisation in plants it was impossible to predict what would come out. Dr. Romanes, a townsman of theirs, whose recent loss they had to regret, in making some experiments on the hybridisation of animals had obtained results which illustrated that. The offspring of albino, white, and brown rats were not piebald, but brown; only in the second generation did the piebald animal appear. Similarly, a Frenchman, working on show dataras, had found that the influence of the parent plants could be stamped out in the course of seven or eight generations, but the plant obtained varied in quite unexpected ways.

Mr. REYNOLDS was specially interested in the paper, as it dealt with his native place of Banbury, where the rhubarb-fields were connected with his earliest recollections. The horticulturalist knew, of course, how to produce uniformity by the use of cuttings, and it was interesting to learn that the same process could be applied to rhubarb. There were not many medicinal substances obtained by cultivation, most of them being grown in Nature's wild garden. Many of them would recollect that cinchona was originally obtained from that source, and how rapidly the trees were cut down so that science had to provide for the cultivation of the bark. During the last few days he had received from Mr. Morson a memorandum as to what the price of quinine was in 1822; it was then 40s. an ounce. Everyone would know the present price of the remedy, and the development it indicated was due to the cultivation of cinchona-trees.

Mr. RANSOM said the Conference was indebted to the author for his notes on both the history and cultivation of the drugs. He believed that rhubarb was almost the only example of an English-grown drug not considered as equal in value to the foreign. If that impression of the lower value of the English-grown rhubarb were a mistake, it would be very interesting to have proof of it. There would be a wide field for more cultivation of the drug in England if it should be shown to be medicinally as active as the Asiatic. As regarded henbane, he could support the statements as to the confusion between the first biennial and annual henbane. Very often, when the annual drug was ordered, it was intended that the leaves of the first biennial plant should be supplied. As to the value in which the two kinds were held, Mr. Gerrard had made some remarks on that some years before, and perhaps he would have something more to add. He had been specially interested to hear that Mr. Usher had succeeded in preventing the attacks of insects on henbane. He would be glad to learn how that had been done.

Mr. GERRARD said that he had done a little work on henbane, both in growing the plant and in examining the alkaloidal constituents. He said that early impressions were often difficult to get rid of, and this was the case with henbane. They had been taught that the beautiful biennial plant which he had seen growing to a height of 8 to 10 feet was the best for pharmaceutical purposes, and it seemed natural when they compared it with the small annual plant. But they often found that such impressions were incorrect, and this was the case especially with cinchona, and also with henbane in a lesser degree. If the annual leaves alone be analysed they will yield the same per cent. of alkaloids as is obtained from the first or second biennial leaves. But if a plant which will yield a more active preparation be required, then it was best to take the first biennial stem and root when the root was large and fleshy, and a preparation will be obtained which will contain twice as much alkaloid as can be obtained from the flowering tops at any period of its life. If the crop be carefully collected and dried, and the leaf well preserved, it will keep for a considerable time, and in three or four years will be found almost as good as when first collected. But he had previously shown that if badly kept and dried the alkaloidal quality will become low, and therefore it was important

that pharmacists should use care in preserving the drug. Overheating in drying would destroy 20 to 30 per cent. of the alkaloidal value of the drug. He was glad to hear that Mr. Usher had succeeded in getting rid of the insect-pests which he had found very troublesome. He considered the preference for the biennial plant was merely sentimental; the first biennial was just as good, and the annual, if well-formed and preserved, was as good as the others.

Mr. USHER, in reply, said he was not an analyst, and could say nothing as to the alkaloidal value of the plant. The dressing he had used to remove the insect-pest consisted of a mixture of equal parts of soot, sulphur, and lime.

TAKEN AS READ.

The afternoon had gone before two-thirds of the papers on the list had been reached, and, soon after four o'clock,

The PRESIDENT rose to say that as they had already gone past the usual time of adjournment, he must ask them to take the remaining papers as read. They would be printed, and an opportunity thus given for discussion by correspondence or otherwise. The following are the papers:—

TINCTURA ERGOTÆ AMMONIATÆ.

By J. T. HORNBLOWER.

The subject of this note was suggested to the writer a short time back by a question being put to him as to why a sample of tinct. ergot. ammon. remained clear on adding it to water, and another became cloudy. The question was, therefore, Should the tincture remain clear on adding it to water (3j. to 2 fl. oz.) or not? On looking at the subject in a cursory manner, he said, one might be pardoned for saying that the menstruum is spt. ammon. aromat. The author added some to distilled water in the proportion of 3j. to 2 fl. oz., and the result was a clear mixture. Then came the question, What was the reason? This, he surmised, was owing to the large amount of fixed oil which ergot contains. It might be that this oil had the power of removing the essential oils from the spt. ammon. aromat., and to a great extent this proved to be right, but not quite so. The following experiments were performed to try and find the reason:—

Ten ounces of ergot were exhausted of oil with 720 ether, the oil resulting being some 3½ oz.

1. Half an ounce of this oil was shaken up with 4½ fl. oz. spt. ammon. aromat. (these quantities were used because ½ oz. oil would be about equal to 1½ oz. ergot, which would equal 3 fl. oz. tincture, which would require 4½ fl. oz. spt. ammon. aromat. to produce it, if made strictly to B.P.C.). After standing, &c., and a portion filtered off, 3j. of this spirit was added to 2 fl. oz. distilled water, the result being a perfectly clear mixture.

2. Half an ounce of the same oil was shaken up with 4½ fl. oz. spt. aromat. sine ammonia (this being a spirit of the same alcoholic strength as spt. ammon. aromat., and containing the essential oils, but no ammonia). On filtering off a little of this spirit, and adding it to water as before, a cloudiness took place, but nothing approaching the milkiness formed on adding an equal quantity of spt. ammon. aromat. to water. The partial removal of the essential oils is, of course, due to the difference in solubility of these oils in the fixed oil and spt. aromat.

3. To the mixture of this latter fixed oil and spt. aromat. sine ammonia the proper amount of ammonia, caustic and carbonate, was added to form spt. ammon. aromat., and the mixture again well shaken for some time, and then a portion filtered off; this, on adding to water as before, remained quite clear. The addition of the ammonia (caustic) had evidently wrought the change, by the formation with the fixed oil of a small amount of soap, which had doubtless the effect of keeping in solution, when added to water, that portion of the essential oils which the fixed oil had not removed.

4. One ounce of ergot was then taken, made into a No. 36 powder, and then into tincture with spt. aromat. sine ammonia; on adding this tincture to water as before, the same amount of cloudiness took place as when the "spt. aromat." treated with oil as in No. 2 experiment was used, thus showing that the oil, either distributed through the ergot or treated separately, had practically the same effect

on the "spt. aromat."—that being, partially removing the essential oils from it.

5. The equivalent of 1 oz. ergot exhausted of its oil was now taken and made into tincture, B.P.C. This should have made a milky mixture with water if the fixed oil had been thoroughly removed from the ergot, as, none being there, it could neither act on the essential oils in the spirit nor the ammonia act on it. On diluting the tincture with water a thorough cloudiness took place, though not so much as a proportionate amount of spt. ammon. aromat. would have caused with water. The fixed oil was evidently not thoroughly removed from the ergot, or more cloudiness must have been produced; for on again treating a portion of this ergot with more ether, and making another tincture, this, on adding to water, became more clear, as expected. Of course, there was not sufficient fixed oil left in the ergot to effect a solvent action on the essential oils of the spt. ammon. aromat., but there evidently was sufficient to form soap enough to make the mixture remain more clear than it otherwise would have done on adding it to water.

6. To 2 fl. oz. distilled water add 5 minims of a solution of hard soap (grs. 40 in 1 oz. spirit), and then add 3j. spt. ammon. aromat. The mixture will become nearly clear, and on adding another 5 minims of soap solution, quite so; the presence of this amount of soap evidently keeping the essential oils in solution.

The reason therefore, he thought, why tr. ergot. ammon. remained clear on adding it to water was that the fixed oil of the ergot, and the soap formed from it by the ammonia, respectively removed part, and prevented the remainder of the essential oils from being thrown from solution. This, however, could only apply when the whole of the tincture had been in contact with the ergot, as in percolation; for if made by maceration, and any deficiency in quantity of finished tincture made up by adding spt. ammon. aromat., a cloudiness would be produced dependent on the amount added.

THE ADAPTATION OF THE SOAP BASIS OF LIN. POT. IODID. C. SAPONE TO SOME OTHER B.P. LINIMENTS.

By E. W. LUCAS.

Attention having been called to the usefulness of the soap-basis of the pharmacopœial liniment of potassic iodide, and to the many advantages that a semi-solid preparation has over a liquid one when required for inunction, the author has made a series of experiments with a view to testing the practicability of its further adoption.

He suggests the introduction of a standard base from which most of the existing liniments could be readily prepared. It is hoped that their ready application, economy, and undoubted safety—the possibility of mistake for mixtures intended for internal administration being minimised—will more than compensate for the somewhat increased trouble in manipulation.

TINCTURE OF IODINE AND ITS ANALYSIS.

By J. F. LIVERSEEGE, F.I.C.

In this paper the author described processes for the estimation of iodine, iodide of potassium, and alcohol in tincture of iodine, and reported on the examination of a number of samples, which he had obtained, and which were generally well up to the official standard.

THE CALIBRATION OF PIPETTES.

By J. F. LIVERSEEGE, F.I.C.

At the outset the necessary freedom from grease should be assured, said the author, by half-filling the pipette with soda solution, carefully heating the bulb with a spirit-lamp, then thoroughly washing.

To obtain concordant results it is necessary to adopt a definite procedure in employing the pipette, for if it be allowed to drain one time, blown out another, and only allowed to run out a third time, the amount of liquid delivered will not be the same.

The pipettes and a beaker of distilled water are put near the balance and allowed to attain the temperature of the room. A flask is tared, the temperature of the water noted, the pipette filled with water, the outside wiped, adjusted to the mark, allowed to run out into the flask, drained five seconds, the surface of the liquid touched with the pipette, and the flask of water weighed.

Proceeding in this way two determinations generally agree (irrespective of the sizes of the pipettes) to within a few milligrammes; in fact, in 60 per cent. of a number of determinations the difference was less than 5 milligrammes.

If the temperature of the water was not 15.5° C., it must be corrected to that temperature. As the British Pharmacopœia required a grain-measure to be the volume of 1 grain of water measured at 15.5° C., and as the fluid ounce was the volume of 437.5 grs. of water at 16.66° C., a fluid ounce was not exactly 437.5 grain-measures, but .07 gr. more. This difference did not account for the errors of four British pipettes tested by the author, a 1-oz. one being -3.6 grs., a ½-oz. one -1.9, a ¼-oz. +1.1, and a 1/10 oz. +.8.

There was a doubt as to the temperature at which a metric pipette was expected to deliver a gramme for each cubic centimetre marked on it. Thorpe advocated 4° C. (the strict c.c.), Dittmar 15° C., Sutton 16° C. or 60° F., while Fresenius required 17.5° C. For most purposes it did not matter at what temperature they were calculated, so long as they were concordant with each other and with the burettes and flasks used with them. The mean results of the examination of a series of metric pipettes (½ c.c. to 100 c.c.) showed only two out of seventeen quite correct. The rest were wrong from .01 to 1.31 per cent.

The variation in the direction (+ or -) and percentage of error (0 to 8.8) showed that there was no uniform system among the makers of pipettes, or that they were sold at too low a price to be consistent.

Fresenius considered an error of 1/10 per cent. of the contents allowable, and the errors of one-third the metric pipettes referred to did not exceed this amount.

EXTRACT OF INDIAN HEMP.

By DAVID HOOPER.

Following a brief review of the history of the plant, the author, whose recent position of analyser to the Indian Hemp Drugs Commission has given him unprecedented opportunities of learning about the composition of Indian hemp, called attention particularly to the extract as containing the active principle of the drug.

Preparation of the Extract—To avoid the 25 per cent. of fixed oil contained in the seeds, which are found to the extent of from 5 to 40 per cent. in commercial samples of ganja, the author removed as much seed as possible before the sample was reduced to coarse powder, and in this way resinous extracts of greater purity could be prepared.

Rectified spirit answered every purpose in extracting the different samples of ganja. In some cases where the resin was high, a stronger spirit was used as a solvent, but this did not effect the solution of a larger quantity of resin. Rectified spirit dissolved from the drug some water-soluble matters in addition to the resins, while absolute alcohol dissolved very little besides the resins.

Amount of Extract in Ganja Samples.—Previous workers had obtained proportions of extract varying from 16.56 per cent. (Lammer) to 20 per cent. (Dr. O'Shaughnessy). In a table the author records some of the results of his examination of selected samples of ganja from various parts of India. The percentages of extract, calculated on air-dried samples of ganja, range from 14.5 in the Bijapur specimen to 31.0 in that from the Kistna district of Madras. The Bengal samples are all very high, and are, in fact, different preparations of the same crop of hemp. The highest yield is from the "chur" ganja, or small matted pieces separated as much as possible from the stalks. The second kind is called "small flat twig," or ganja on small stalks. The third kind is "large flat twig," or ganja on large stalks. The fourth kind is known as "round ganja," prepared by rolling the fresh flowering and fruiting tops by the hands or feet until they assume the shape of unfinished cigars. The ganja prepared in Sholapur is the best in the Bombay Presidency, although the exported product is much richer than that purchased locally. The examination of ganjas from different parts of India shows that, as far as the amount of resins is concerned, the samples from Eastern Bengal do not stand alone in their excellence. Dr. Watt, in 1886 and 1887, pointed out the difference in the duty imposed on Bengal ganja compared with that of Bombay and Madras,

and suggested that the Bengal ganja only should be used in the manufacture of the extract. He also concluded that the reputation of the extract had declined in Europe, because it was being made from inferior hemp. Unless there were found a very great variation in physiological action of the extract from Bengal and that from other places, no drug-dealer would think of paying ten times the price for a similar article, merely for the sake of its name or because it yields a little more resin. Madras samples—from Ootacamund, Bangalore, Tanjore, and Madras City—were all from one cultivating and manufacturing centre in the Javadi Hills in North Arcot. The figures attached to these samples show the absence of that uniformity met with in the analysis of the kinds of Bengal ganja.

Composition of the Extract.—The chief constituent of the extract is a neutral resin of a brown colour and tough consistence, soluble in petroleum ether, benzol, ether, carbon bisulphide, and amyl and ethyl alcohol, insoluble in alkalies, and leaving no ash when ignited. This resin contains the active principle. A small quantity of resin acid—about $\frac{1}{3}$ per cent.—was present in all the samples. This, in the hands of Dr. D. Prain, of Calcutta, proved to be physiologically inactive. Oil, fat, wax, and chlorophyll also entered into the composition of the spirituous extract insoluble in water.

The water-soluble substances removed from the extract are chemically interesting, although not yet proved to be medicinally active. An alkaloid was present in nearly all the fresh samples of ganja, but occurred only in traces in older specimens, and was altogether absent in extracts that had been kept for some years. Ammonia, often associated with this alkaloid in fresh hemp, was found alone in older drugs, and frequently only in traces in old extracts. The alkaloid and ammonia are combined in the plant-juices with one or more organic acids, one of which had the properties of citric acid, and another resembled an amorphous organic acid often found in plants. A substance was present in the extract which gave a purplish-black colour with ferric chloride, rapidly turning into a brown precipitate, and the precipitate dissolved in soda liquor with a red colour. Sugar has not, he believed, been detected before in hemp drugs, but it was present in all the Madras ganjas examined, and in the leaves only from cultivated and wild plants from other districts. Traces of sugar were found in some of the Bengal and Bombay ganjas, nearly 5 per cent. was present in the sample from Ghazipur in the North-Western Provinces, and the Madras samples contained from 6 to 7 per cent. The sugar was amorphous, and easily reduced Fehling's solution.

Examination of Commercial Extracts.—Three samples of ext. cannabis indicæ made in England were compared with the above extracts made from Indian material.

The first sample was a portion of very old stock; the second sample was also very ancient—some brown juice and mouldy particles were on the sides of the vessel in which it was kept; the third sample was said to be from a fresh consignment. From the microscopical and chemical examinations the first sample would seem to be the best, as it yielded the largest proportion of pure resins, and the third sample the worst. It would seem that the ash bears a certain ratio to the water-soluble substances, and is traceable to the saline constituents of the plant. Manganese was present in the ash of Indian hemp grown in different localities, and was found in the ash of the extracts. On igniting the aqueous extract obtained from the third sample deflagration ensued, owing to the potassium nitrate present. Nitre had been found in Indian hemp by Messrs. T. and H. Smith.

After observing the dull olive-green colour of the extracts obtained from a large number of ganjas, the author noticed the very bright-green tint of the commercial extracts when spread out on glass dishes, and was not surprised to find copper in each sample. When the extracts were burnt in a platinum dish the copper present communicated a green colour to the flame, and the ash of each extract when dissolved in nitric acid and the solution saturated with ammonia resulted in a deep-blue solution. The presence of this metal in manufactured extracts derived from the copper evaporating-pans has been pointed out, and therefore it was surprising to find that in a paper published in the *Pharm. Zeitung* (THE CHEMIST AND DRUGGIST, June 9, 1894, p. 802) a firm of manufacturing pharmacists had tried to attribute the copper found in extracts to its presence in the

drugs themselves. The author had examined the ash of bhang and ganja and had not discovered copper, but the amount of this metal in the extracts was decidedly higher than that shown in the paper (24 milligrammes per kilo.).

Ganjas always lose their strength when kept for some time, and many dealers in India obtain new supplies annually, and always consider the drug worthless after being kept three years. This is a matter worthy of consideration in England, and the failure of the action of the drug owing to the decomposition of its active principle is probably the cause of its downfall in medical estimation.

SOME FALLACIES IN THE TESTING OF ESSENCE OF LEMON.

By ARTHUR A. BARRETT, Messina.

The object of this short note is to draw attention to the absolute worthlessness of the tests in common use for the examination of the purity of essence of lemon.

Until a few years ago almost every buyer contented himself with rubbing a little on his hand and smelling it; but repeated cases of essence "changing" into turpentine have forced upon them the desirability of relying on some chemical or physical test which should be more accurate.

As in so many other cases, Germany led the way, and a well-known firm advertised largely recommending the use of the polarimeter as a test.

Although it is the object of this note to show how entirely useless is this test, yet it undoubtedly has done good work, and has prepared the way for the acceptance of a really scientific test, which, in my opinion, is certain to be evolved during the next year or two.

During the last two years I have had a polarimeter in almost constant operation, and during the lemon season have often examined as many as twelve samples of essence a day with it.

The result has proved that genuine essence may differ in its optical activity between $+57^\circ$ and $+72^\circ$. As the addition of 5 per cent. of raw turpentine to genuine essence only makes a difference of 4° or 5° in its rotation, it is clear that such a test is one that cannot be relied on.

As regards the limits above mentioned, it is only fair to say that they are exceptional, and, in the case of the higher reading, I cannot absolutely guarantee it, but $+69^\circ$ is not so uncommon.

In the case of the essence with the low reading of $+57^\circ$ I was so altogether incredulous that I had some of the lemons brought to my works, and the essence extracted by my own employés, with the same result.

It is rather remarkable that the maturity or otherwise of the lemons does not materially affect the reading, but the district in which the lemons grow makes a great difference, as may be seen from the following table, which gives the average results obtained:—

Essence from Asi Reale and district	$+61^\circ$
Immediate vicinity of Messina	$+62^\circ$
Giane Giardini Mascali	$+63-64^\circ$
Barcellona (Sicily)	$+66-67^\circ$

All the above measurements were made with 100-mm. tube and ordinary artificial light. Where great accuracy is required, sodium light is desirable, but I did not find such a refinement necessary.

During the present year several Messina firms have invested in polariscopes, and, being without scientific assistance, some very curious mistakes have resulted.

In a letter to the American Consul, published in the consular reports for May, 1894, by the Department of State at Washington, and which, I may say, contains a valuable report on the Messina essence-trade—one of them writes:—

"The requisites which modern science has found to distinguish the adulterated essence from the pure must be:—

Essence of Lemon.

Specific weight ..	0.8587	15° C.
Opt. rotation ..	$+62^\circ$	100-mm. tube
Index of refraction ..	1.476	20° C.

It is clear, therefore, that this firm must continue to buy their lemons from the same district, or by their own tests their essence may be rejected as adulterated.

The second objection to the general adoption of this test is the great assistance which it gives to fraud.

The remark is not original, but testing by the polarimeter is like mixing black and white, and, when you see grey, thinking you have got purity.

In this case everything is ready to hand for the mixing process. Turpentine as used in Messina is always laevorotary, whilst essence of sweet orange is powerfully dextrorotary, +98° being the average. It is, therefore, only the matter of a simple proportion *snm* to get a mixture indistinguishable polarimetrically from essence of lemon. I would state the exact proportions, but the object of this note is not to assist fraud, but to expose it.

Shortly after the boom in polariscopes, which took place in Messina at the beginning of this season, I was waited on by one of the local turpentine-refiners, who told me that he had modified his "refining" process in this way, by adding to it some very cheap distilled essence of orange, and it was now absolutely impossible to detect its presence. In fact, he declared that, business being slack, he had himself mixed essence, and sold it to a Messina dealer as genuine after he had tested it with the *macchinetta*, as they call it there.

In any other country the avowal of such a proceeding would very likely lead to legal proceedings, but there it is only considered as being sharp business, the addition of turpentine to essence being considered to be almost sanctioned by long use.

The Refractometer.—During the current year another machine has been introduced in Messina for the optical examination of essences. It is a pretty little machine, and only requires a drop of essence for a test. I commend its use by chemists examining oils generally, but for the examination of lemon I do not find it of any use. A few experiments showed me that of the two kinds of turpentine used there—ordinary French and the kind sold as citronina—the one increased and the other diminished the readings, and the presence of 5 per cent. of either made only a difference of a fraction of a degree. Further, the instrument is extremely sensitive to changes of temperature. For the present, therefore, my instrument is relegated to the museum.

Perhaps the commonest test known is the specific gravity, and this is literally subject to changes with every wind that blows. Just think of the enormous surface exposed to the air by a garden of lemons, and think that every drop of essence is pressed out by a man's fingers, runs over his hand, and is finally absorbed by the pores of a sponge. Then remember that in Sicily we get the *sirocco*—a hot wind from the Sahara—and you will not be surprised that evaporation at such times is considerable, with increase of specific gravity. On such occasions the yield of essence will fall 5 or even 10 per cent., although every precaution may be taken in the workroom to exclude draughts.

The only remaining test in common use to which I need now refer is the test for mineral oil with alcohol or by evaporation on a piece of paper. Both of these tests are delicate and reliable.

I prefer to use flimsy, or the paper used for packing lemons, myself for making this test.

The various empirical tests, butyrate of copper, &c., proposed from time to time, and which may be found scattered up and down the periodical literature of the past, are not in common use, nor do they merit attention.

The direction in which progress is to be looked for now is chemical rather than physical. Optical activity, refraction of light, and specific gravity have all been tried in turn, and, though not without some value, leave much to desire. The estimation of the citral naturally presents itself, but it is present in too variable a proportion to be useful as a test of genuineness. Its utility is rather as an assay. I may mention, in passing, the work of Messrs. Benedikt & Strache (*Monatsh. f. Chemie*, April, 1893); other recent memoirs have probably escaped me owing to my being so far away from any scientific library.

What is wanted is to select some one constituent which is present in constant proportion and estimate this.

Although in the commencement of this paper I looked forward to the new advent of a test which should be of some use, and have sketched out the lines on which it should run, yet chemical science will never be able to say more than this essence contains or does not contain an added adul-

terant, or this essence contains so much citral, and that other so much.

The fine gradations of quality which make the essence of one maker preferred, and the essence of another only saleable at a reduction, are, and always will be, incapable of exact measurement.

Compare the fragrance of essence made with scientific care from fruit freshly gathered off the trees and rapidly filtered and hermetically sealed down, with the essence made by the ignorant *trapettari*. His fruit is stale, perhaps half rotten; he works in a hovel innocent of drainage; his sponges are old and never washed, full of a putrefying mass of lemon-lice (*pidocchia*), bird-droppings and all sorts of dirt.

Is the essence he makes pure? Of course it is if he puts nothing in. But is it worth the same as the other? Of course not.

RHUBARB.

By B. S. PROCTOR.

In this paper the author summarises the results of work done by himself on this drug since 1868, and gives details of a comparative examination of the various portions of the root with a view to ascertaining their relative value for pharmaceutical purposes. He also gives suggestions for improved tincture, syrup, and extract. We hope to print the paper in full next week.

PRESENTATION FROM THE BELL AND HILLS FUND.

The PRESIDENT, rising, said that he might be allowed to explain, although he was not very well up in the subject, that owing to the munificence of the late Mr. T. Hyde Hills there was made to the Local Pharmaceutical Association wherever the Conference went a present of books. In Oxford there was, unfortunately, no local association, but as the condition of the presentation was that the books should be put where they would be accessible to the chemists and druggists of the neighbourhood, the presentation would be made by the Secretaries at a later time, and the books in due course would be placed in suitable hands for the chemists of Oxford. Perhaps Mr. Drnce would say where they were to be kept. (Applause.)

Mr. G. C. DRUCE said the books would be stored in the Public Library in the city for reference either by pharmaceutical students or by other people who wished to consult them until a pharmaceutical society was started in Oxford. The books would then be handed over to the committee of that body.

THE FORMULARY COMMITTEE.

Mr. W. LLOYD WILLIAMS was the next to rise, at the invitation of the President, to propose that the members of the Formulary Committee should be re-elected as below. The interests of pharmacists, he said, were perfectly safe in their hands, and he thought it would be in accordance with their wish that the members should be re-appointed:—

W. Martindale, Chairman	N. H. Martin
W. A. H. Naylor, Secretary	F. Ransom
A. C. Abraham	R. Reynolds
T. Greenish	C. Symes
T. B. Groves	R. Wright
T. Maben	

Mr. LINFORD seconded the motion, and on the President putting it to the Conference, it was carried with applause unanimously.

Mr. MARTINDALE returned thanks for the re-appointment of the Committee, although he could not say that he could again act as its chairman. He thought that some gentleman should be appointed who could give the matter more time. The new edition, he might say, would be ready in a week or two, and due notice would be given of it.

THE CONFERENCE OF 1895.

The PRESIDENT, again rising, said that Mr. Bridge, of Bournemouth, had a communication to make to the Conference, and as he was now in the room, perhaps they would be good enough to listen to what he had to say.

Mr. BRIDGE, who was received with prolonged applause, said it was with great pleasure that he came before them to offer a unanimous invitation from the pharmacists of

Bournemouth to the Conference to hold their meeting next year in that town. They could not, of course, invite them to anything like Oxford; there was but one Oxford. Bournemouth was about as new as Oxford was old; but they were vigorous—(applause)—and vigorous infants were very interesting sometimes. He assured them the invitation was entirely unanimous. If they would accept it, and come to them in 1895, no other city or town which the Conference had visited would be found to have exceeded the welcome they should receive.

Mr. TOONE, also of Bournemouth, seconded the invitation in a very cordial manner, and

Mr. GERRARD rose to move that the invitation which had been so cordially given them by Mr. Bridge and Mr. Toone should be accepted.

OFFICERS FOR 1894-5.

The list of these was read as follows:—

President.

N. H. Martin, F.L.S.

Vice-Presidents.

M. Carteighe, F.I.C., F.C.S., London

W. Hayes, Dublin

Laidlaw Ewing, Edinburgh

J. A. Toone, Bournemouth

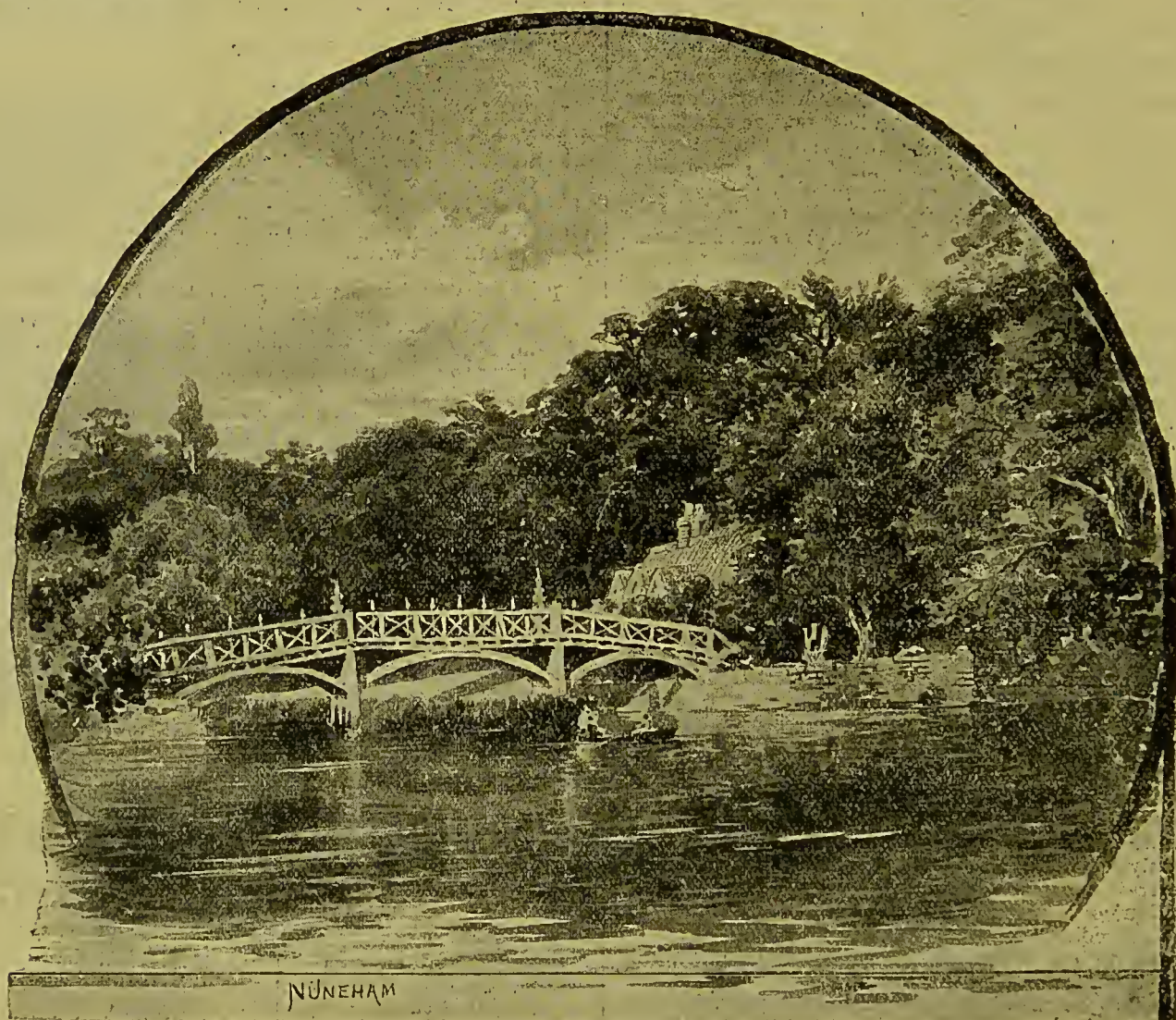
Treasurer.

John Moss, F.I.C., F.C.S., London.

Honorary General Secretaries.

W. A. H. Naylor, F.I.C., F.C.S., London.

F. Ransom, F.C.S., Hitchin.



Mr. WARD, of Sheffield, seconded the proposal.

The PRESIDENT, in putting it to the meeting, referred to the fact that they had not, as in former years, received an invitation from the town (Ipswich) at which the British Association would hold its annual gathering. There seemed to be a mistaken idea as to the wants of the Conference, and he wished to remove the impression that prevailed that the Conference necessarily entailed an expense upon the town which accorded it an invitation to hold its meetings there. The Conference was self-supporting, and he wished that fact to be thoroughly understood. Any small town, or even village, that had the necessary hall to meet in and sufficient accommodation could entertain them without suffering monetarily.

The motion was then put, "That the British Pharmaceutical Conference do hold its meeting in 1895 at Bournemouth," and carried unanimously.

Mr. BRIDGE said he offered the Conference hearty thanks for the compliment which had been paid to his fellow-townsmen.

Honorary Local Secretary.

Stewart Hardwick, Bournemouth.

Other Members of the Executive Committee.

F. O. J. Bird, London

E. M. Holmes, F.L.S., London

P. Boa, Edinburgh

H. Mathews, Oxford

— Bridge, Bournemouth

W. F. Wells, Dublin

E. H. Farr, Uckfield

R. Wright, F.C.S., Buxton

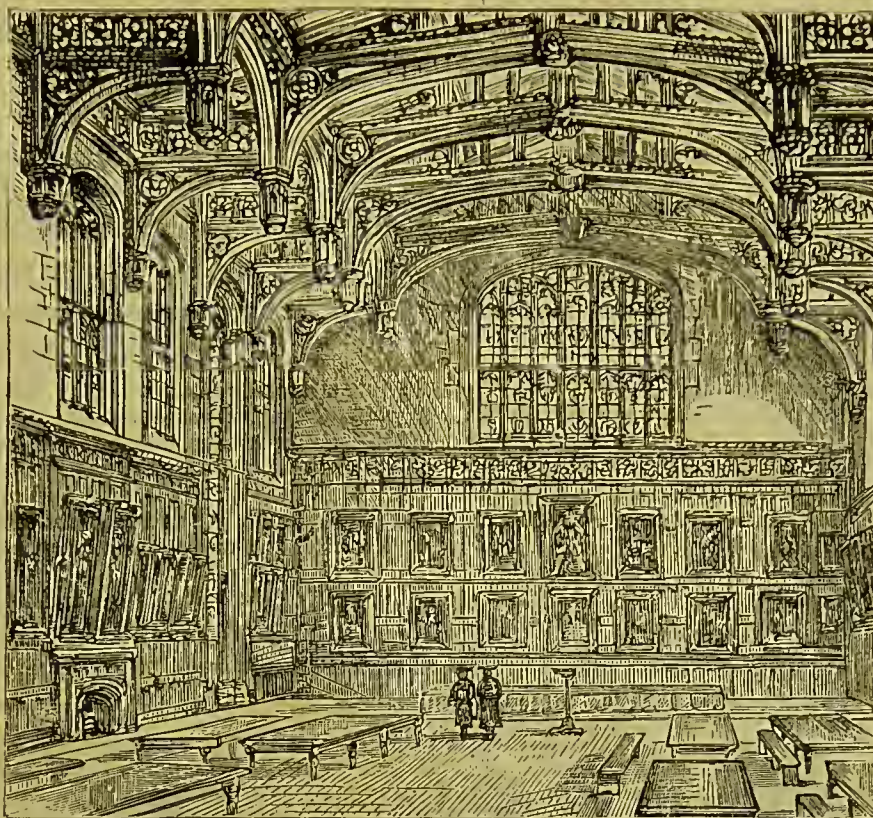
J. Hodgkin, F.I.C., F.C.S., London

Auditors.

C. Clayton, Oxford.

F. Spinney, Bournemouth.

The name of the President was received with acclamation, and in formally bringing the list before the meeting Mr. Martin solemnly pointed out, amid some laughter, that it was open to any member of the Conference to challenge the list.



CHRIST CHURCH HALL.



BODLEIAN LIBRARY.

VOTES OF THANKS.

Mr. GROVES proposed, and Mr. JONES seconded, a vote of thanks to the Governing Body of Christ Church College for the loan of the hall for the purpose of the reception by the President and the members of the Conference. In speaking of the pleasant evening everyone had spent, the mover of the vote referred to the indebtedness of the members to Canon Ince for his address, and to those who provided objects of interest and instruction.

Mr. CARTEIGHE moved, and Mr. INCE seconded, a vote of thanks to the Warden and Fellows of New College for permission to use the gardens for an afternoon "at home." Mr. Carteighe said he had felt a special interest in the meeting, because they had seen and heard how the great city itself, the universities, and the professors were sympathetic with pharmacy. Mr. INCE spoke especially of the high character of the music which was provided.

Mr. ATKINS and Mr. MOSS proposed a vote of thanks to the Master and Governing Body of Balliol College for the use of the hall for the sessions of Conference. Mr. Atkins spoke gracefully and felicitously of the antiquity, beauty, and stirring memories of the place, and of the late Master of Balliol, whose portrait adorned the wall.

was determined to be a self-supporting body. It ought to be, and then they would be enabled to go when and where they liked.

Mr. DRUCE, in response to loud calls, said that he had no part in the vote of thanks, as he had been away and had not been able to do anything, but since he came back he had done his best to further their pleasure. (Hear, hear.)

The PRESIDENT said that one remark of Mr. Mathews might be misunderstood. The Conference always had been self-supporting. If some local committees had spent money it was hardly the fault of the Conference. ("Oh!")

THANKS TO THE PRESIDENT.

Mr. REYNOLDS then rose to propose the following vote of thanks:—"That this meeting, recognising the ability and courtesy with which the President has conducted its proceedings, accords him a hearty vote of thanks." He said they had been fortunate both in coming to Oxford and in having as President one who was connected with modern advancements of pharmacy.

Mr. MARTINDALE seconded, and said he was gratified with the kind manner of the President in the chair. He managed well and hit straight, and he was glad he would preside



Bourne Lock

THE LOCAL COMMITTEE.

Mr. W. GOWEN CROSS proposed a hearty vote of thanks to the local committee, especially to Mr. Prior (Chairman), Mr. Mathews (Local Secretary), and Mr. G. C. Druce. He said that the success of that Conference depended on the way in which the local committee forwarded the arrangements, and that the meeting at Oxford having been so great a success therefore reflected great credit on the committee. He thought it spoke well for them that even in this city, so great a seat of learning, the pharmacist had been received with every honour.

Mr. NAYLOR seconded the proposed vote, and said that he, as a secretary, could especially understand the immense amount of work the committee had had to get through.

The PRESIDENT put the motion to the meeting and it was carried amidst loud applause.

Mr. PRIOR said his position as Chairman was peculiar, as he had been unable to do anything, and Mr. Mathews had carried out the whole of the arrangements.

Mr. MATHEWS, who was received with enthusiasm, thanked the members for the vote of thanks and for the hearty manner in which it had been received. He said that, though all the pharmacists at Oxford had been unable to be present, yet they had the sympathy of them all—(hear, hear)—and they had expressed their satisfaction at the visit of the Conference. He was glad to see that the Conference

next year at Bournemouth, where he was sure there would be a good meeting.

Mr. REYNOLDS then put the motion to the meeting, and it was carried by acclamation.

The PRESIDENT said that, if he had a voice, he could not tell them how he thanked them for their kindness; and if he had deserved their praise, it was due to the fact that early in life he had set before himself ideals, and those ideals were among the past Presidents of the Conference—Henry Deane (his former tutor), H. B. Brady, and others. The President was a nonentity unless he was supported by the members and the readers of papers, and he had prophesied that when they came to Oxford they would want to add a day or two to the Conference in order to get through their work, and his prophecy proved true, for they could advantageously have added another two days in which to discuss the papers they had unfortunately had to take as read. (Hear, hear.) With regard to next year, it was a serious matter, for his part, to allow himself to be nominated a second time. He was himself a Tory, both in business and elsewhere, and he always studied precedent, and in case that did not offer a satisfactory guide he followed his own conscience, and then he was often a Radical. (Laughter.) On these grounds he had allowed himself to be nominated for another year. (Loud applause.)

Mr. CARTEIGHE then proposed, and Mr. C. UMNEY

seconded, that a hearty vote of thanks be given to the hon. general secretaries for their arduous labours, not only during the Conference, but all through the year in London.

This was put and carried unanimously.

Messrs. Naylor and Ransom briefly replied, and the Conference adjourned at 5.15 P.M. till next year.

CONCERTS.

The usual "Smoker," which with unfailing regularity is arranged for Wednesday evening of Conference week, was held at the head-quarters (the Randolph Hotel) on Wednesday evening. There had, we believe, been some difficulty at first owing to the scarcity of good singing men, and the absence this year of at least one well-known entertainer (Mr. A. H. Allen, of Sheffield), in getting together a good programme, but in due time for the entertainment this had been arranged, and a convivial evening was spent. Mr. Conroy, of Liverpool, whose genial presence one almost looks for as a part of the Conference week, presided, and the following gentlemen contributed to the evening's entertainment:—Messrs. Atkins, Thompson, Bridge, Tompsett, Thomas Tyrer, Cooper, Strother, Dr. W. Ince, and others. There were also present Messrs. Jackson, Knowles and Wood, members of the glee party that performed so charmingly at the garden-party in New College on Tuesday afternoon.

In friendly rivalry the ladies had arranged a drawing-room concert at the Randolph for the same evening. The exigencies, however, of going to press compelled us to take our departure before the gentlemen were invited to take part in what could only have been a delightful and pleasing entertainment.

THURSDAY'S EXCURSION.

An excursion was provided on Thursday. The members started at 9 A.M. from the Folly Bridge in two boats, proceeding up the river past the college barges, through Ilfley Lock, with its picturesque mill, one of the prettiest spots on the river, as far as Abingdon, a distance of eight miles, which was covered in three and a half hours. At Abingdon luncheon was provided in the Corn Exchange. On the return journey a visit was paid to the beautiful grounds of Nuneham, the seat of Aubrey Harcourt, Esq. Tea was served on the boats afterwards, and Oxford was reached about 8 P.M.

MEMBERS PRESENT.

Alcock, F. H., Birmingham	Elborne, Mr., London
Alexander, J., Waterloo	Elborne, Mrs., London
Atkins, S. R., Salisbury	Emerson, H. E., London
Bates, J., Bicester	Fairburn, H., Northallerton
Bates, J. A., Wellington	Farr, E. H., Uckfield
Beggs, George D., Dublin	Fink, Wm., London
Beggs, Mrs. G. D., Dalkey	Flux, Wm., London
Bilson, F. J., Bournemouth	Foggan, G., Redlington
Bolton, C. A., Nottingham	Forbes, M., Bolton
Bremridge, R. H., Magdalen College	Gadd, H. W., Exeter
Bremridge, Riebd., London	Gadd, W. F., Ramsgate
Buck, A. S., Liverpool	Gane, E. H., London
Burden, E. M., London	Gerrard, A. W., Chertsey
Burnett, Jos. F., Oxford	Gibbs, R. Darton, Birmingham
Burnett, R. W., Bristol	Gibson, F. J., Wolverhampton
Butler, E. H., Leicester	Gibson, W. H., Brighton
Campkin, A. S., Cambridge	Green, J., Swindon
Cardwell, E., Reading	Greenish, Hy. G., London
Carteighe, M., London	Groves, Thos. B., Weymouth
Carteighe, Mrs., London	Hall, H. E., London
Clayton, C., Oxford	Hardwick, Stewart, Bournemouth
Close, M., Mortimer, Berks.	Hayles, B. H., New Barnet
Colman, Alfred, Cardiff	Hills, W., London
Conroy, M., Liverpool	Holmes, E. M., London
Cooper, Mr., Manchester	Holmes, E. M., Sevenoaks
Cooper, Mrs. J. R., Manchester	Humphrey, John, London
Crawshaw, E., London	Hutton, H., Leamington
Cross, W. Gowen, Shrewsbury	Hyne, H., West Hampstead
Currie, William L., Glasgow	Ince, Joseph, London
Dennis, Mr., Nottingham	Ince, Walter H., London
Dennis, Mrs., Nottingham	Jessop, J. W., Oxford
Dolpear, J., Oxford	Johnson, R. J., Newcastle-on-Tyne
Druce, G. C., Oxford	Johnson, Thos., Wigan
Dyson, Mrs., South Kensington	Johnston, C. A., Manchester
Dyson, W. D., South Kensington	Johnston, Jno., Aberdeen
Eastes, Ernest J., London	Johnston, Rob., M.B., Aberdeen

Johnstone, C. A., Manchester	Shears, James, London
Jones, H. W., Coventry	Shepherd, J. W., Settle
Kuhn, B., London	Simpson, Hy. D., Louth
Kay, Fred. W., M.A., Aberdeen	Smith, J. T., Radcliffe
Kemp, Henry, Manchester	Smith, Mrs., Radcliffe
Kinninmont, Alex., Glasgow	Spilsbury, J., London
Lake, J. H., Exeter	Spinney, F., Bournemouth
Linford, J. S., Hull	Storrar, David, Kirkcaldy
Long, Henry, Reading	Stotter, Chas., London
Lucas, E. W., London	Symes, Charles, Liverpool
Luxton, Fred., Exeter	Taubman, Robt., London
Marsden, P. H., Birkdale	Taylor, George S., London
Marsb, E. R., London	Taylor, Miss, London
Martin, Miss, Newcastle	Taylor, Miss M. A., London
Martin, Mrs., Newcastle	Thompson, Chas., Birmingham
Martindale, W., London	Thompson, Mrs., Birmingham
Mathews, Hy., Oxford	Tingle, J., Grantley, London
Mathews, J. H., Oxford	Tompsett, L. S., Anerley
Mitten, Flora, Hurstpierpoint	Toone, J. A., Bournemouth
Mitten, K. E., Hurstpierpoint	Toone, Mrs., Bournemouth
Moss, John, London	Towerzey, A., Clifton
Naylor, W. A. H., London	Turner, Arthur, Aylesbury
Newbould, J. M., Manningham	Turner, J., Aylesbury
Nightingale, J. C., London	Tyrer, Thomas, London
Parry, E. J., London	Umney, Chas., London
Parry, Mrs., London	Usher, Richard, Banbury
Partington, J. J., Bath	Want, W. P., London
Perry, George E., Birmingham	Ward, G. W., Leeds
Pettinger, E., London	Warren, W., London
Pidd, N. J., Manchester	Webb, E. M., London
Prior, G. T., Oxford	Weston, Mrs., London
Prosser, Mrs., Birmingham	Weston, S. J., London
Prosser, S. H., Birmingham	Wheeler, A. M., Oxford
Ransom, F., Hitchin	White, Edmund, Putney
Reynolds, Richard, Leeds	Whitrod, H. F., Diss
Robinson, W. P., Clapham	Williams, Mrs., Conway
Sangster, Arthur, Hampstead	Williams, W. G. H., Conway
Savage, Marion, Brighton	Williams, W. Lloyd, Dartford
Savage, W. W., Brighton	Wink, J. A., London
Schacht, G. F., Clifton	Wright, R., Buxton
Sbarr, Wm., Newcastle-on-Tyne	Wright, Theo. R., London
	Young, R. Fisher, New Barnet

THE FEDERATION OF LOCAL ASSOCIATIONS.

A MEETING of delegates from the various associations who have joined the Federation was held at the Randolph Hotel, Oxford, on Monday evening, July 30, at 6 P.M. Some twelve associations sent delegates. The chair was taken at the commencement by Mr. W. Gowen Cross (Vice-President of the Pharmaceutical Society), who called on the honorary secretary, *pro tem.*, Mr. C. Thompson, of Birmingham, to read the report of the work done since the last meeting. This was not very encouraging, for although only two associations—the Western Chemists' Association (London) and the Newcastle-on-Tyne Pharmaceutical Association had formally declined to join, the majority of Associations had not, up till then replied to the several communications of the Secretary. Several had promised to consider the matter when their next session reopened. The Chairman invited discussion, after which, on the motion of Dr. Symes, the election of officers was proceeded with. The following were elected:—President, Mr. H. Kemp; Vice-President, Mr. W. L. Currie; Hon. Secretary and Treasurer, Mr. C. Thompson; Executive Committee, Messrs. Bolton, Campkin, Gane, Gadd, and Symes.

The delegates present were: Mr. W. G. Cross, Shrewsbury; Mr. H. Kemp, Manchester Pharmaceutical Association; Mr. C. Thompson, Midland Chemists' Association; Mr. W. L. Currie, Glasgow and West of Scotland Pharmaceutical Association; Mr. C. Symes, Ph.D., Liverpool Chemists' Association; Mr. A. S. Campkin, Cambridge Pharmaceutical Association; Mr. E. H. Gane, London Chemists' Assistants' Association; Mr. C. A. Bolton, Nottingham Chemists' Association; Messrs. Lake and Gadd, Exeter Pharmaceutical Association.

WIFE: An' phwy do yez be takin' thim pills when yez are all well again? Husband: Faith, would yez be after havin' me let a dollar's worth of pills go to waste? It's a thrifless family Oi married into, sure.

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from these LIQUORS. THEY ARE INDISTINGUISHABLE FROM THE MOST
CAREFULLY PREPARED OF THE FRESH PREPARATIONS, AND THEIR EQUAL
IN POTENCY."

Editorial Comments.

TRADE OR PROFESSION?

"PHARMACY as a trade is a failure."

This is the last word of pharmaceutical wisdom. It is the
opinion of the President of the British Pharmaceutical
Conference, arrived at after more than thirty years of "wide
contact with pharmacy and medicine, and of loving service
to pharmacy." We have no means of knowing how far the
President's views are endorsed by the Executive Committee
and the members of the Conference, for discussion of the
inaugural address is not in order. If this were not the case,
we may be quite certain that Mr. Martin's expression of lofty
sentiments would have excited some lively differences of
opinion even at Oxford; but such as it is, it stands on the
records of the Conference as the utterance of its official chief
in 1894.

The author of this remarkable dictum evidently does not
expect that his opinions will command universal assent, and
in this respect at least we may credit him with a sound
perception. It must be understood that he does not mean
merely just what the words we have quoted express. He
does not mean that chemists and druggists have not been
on the whole very successful in business. He means that
commercial success, so far as it has attended the operations
of pharmacy, has been the curse of our calling. We have no
right, he argues, to aim at commercial success. If we
conduct our business as a trade, and in the spirit of a
commercial venture, we "ought to fail." And this comes
from the head of a prosperous pharmaceutical business in the
North of England! Mr. Martin's thirty years' experience
and cogitations have led him to the confident conclusion
that for the rest of us, if not for himself, the combination of
trade with profession is an impossibility.

We do not wish to misrepresent Mr. Martin. Many readers
will assume that he must have been speaking in paradox, the
point of which we have missed. If so he took great pains to
conceal it. His language seems explicit enough, and we
cannot detect any other meaning in his words than that
which we have attributed to them. If he had implied that
dishonest or dishonourable trading—such as in another part
of his address he with discreet valour only vaguely hints at—
is incompatible with a high code of professional ethics, he
would have spoken the baldest of platitudes, but his assertion
would have been incontrovertible; but this is not his mean-
ing. His definition of the trading which pharmacists are
called upon to repent of and eschew covers what might be
perfectly legitimate and creditable to men whose ideals are

not so lofty as those which are held forth as the standard for pharmacists.

What is there impossible, and what is there disgraceful, in the union of trade and professionalism which, as it seems to us, is the essential characteristic of a pharmacist's occupation? The trader buys and sells; the professional man makes an income by the exercise of a more or less expert knowledge or skill. It is good policy to acquire as much knowledge and skill as possible, and to exercise it as profitably as possible within the limits of honesty. That is to say it is wise to cultivate the professional side of pharmacy as far as possible. But he is a fortunate and an exceptionally circumstanced pharmacist who can make 10 per cent. of his income by this means. The vast majority of pharmacists must for a long time to come, and perhaps for ever, supplement it by mere buying and selling. Mr. Martin seems to argue that if apprenticeships were again more real, if a two years' curriculum were imposed, and if the qualifying examination were made as severe as the present Major, or even more so, the position he insists upon would be attained. It is quite reasonable to assume that such a training would make the pharmacist fitter for professional work, and the proposition might well be defended that the adoption of such a course would pay in the long run. But that is another story altogether. What we have been protesting against is the monstrous allegation that the pharmacist's duty is to free himself from the corrupting influences of commerce.

Mr. Martin's contention that all would have been well if it had not been for the 5th section of the Pharmacy Act, which admitted to the register all chemists and druggists in business in 1868 without examination and without fee, is amusing in its illogicality. In the very next sentence he cuts away the ground from under his feet by complaining that the men admitted since—men who have passed examinations and paid fees—have themselves been infected by "the baneful influence of the trade element."

The President's scoffs at medical quacks and nostrums are conceived in the spirit of burlesque, and consequently lose all their force. We know of no actual successful swindles which correspond with the imaginary "liquor curaline co." or "skinnaline." A letter like the one signed "Bunkum, Quack & Co." was exposed in a recent trial, but it proves nothing, even against the Press, for we are not aware that it secured a single favourable response. Why it was introduced in this connection, and how it affects pharmacists we are at a loss to imagine. If Mr. Martin objects to all pharmaceutical novelties or improvements, he takes up an intelligible, though hardly an intelligent, attitude. But sneers and innuendoes, the application of which can be disclaimed whenever it becomes convenient to do so, are not the weapons of open warfare.

We are sorry to find ourselves so completely at variance with an address which we readily admit will commend itself to readers by its attractions of style and its vigorous denunciations. We do the author the justice to believe that he prefers the triumph of reason and truth to the ephemeral success of his own arguments; and we have good hopes that his address will prove to be one of exceptional value, for it is a notable fact that the clearest perceptions of right are often arrived at by the tendency which such a paper as this imposes on its readers to examine closely into the questions which it discusses.

CONFERENCE WEEK.

THE attractions associated with Oxford in its broadest aspect are probably sufficiently diverse to satisfy even so hetero-

geneous a collection of devotees of science and art, learning and culture, business and pleasure, as is afforded by a company of pharmacists. The marvel is that in a generation of Conference ramblings other gravitating influences than those of the British Association should not long ago have made their forces felt, for assuredly Oxford in such a case would not have had to wait thirty years ere it opened its arms to the followers of the pharmaceutical art.

Perhaps now that the centrifugal influence has demonstrated its presence, its velocity may be uniformly accelerated, and who knows but that we may revolve all the freer when quite outside the orbit of our heavier neighbour?

There was a fitness in the preliminaries of this Oxford Conference which appealed forcibly to that precision which characterises all good pharmacists; and the eloquent remarks which Canon Ince uttered in Christ Church hall on Monday night found an appropriate echo in the graceful words of Sir Henry Acland at the opening of the Conference proper in the great hall of Balliol on Tuesday morning.

Indeed, Sir Henry's speech brought out clearly how close was his own actual connection in early life with pharmacy, for "instructed, scolded and taught" by Lloyd Bullock and Peter Squire he paid the highest tribute to the character and high motive of those men as well as to their knowledge.

The newly-appointed Master of Balliol and the Mayor of Oxford also gave a most cordial welcome to the Conference, and by 10.30 A.M. the President of the year, Mr. N. H. Martin, of Newcastle, had the attentive ear of an audience of some 250 ladies and gentlemen.

This splendid audience became considerably reduced as soon as "the real business of the Conference," to quote one of the members who alluded to the reading of the papers in these appropriate terms, had commenced.

The respective reports of the Executive Committee, Treasurer, and Unofficial Formulary Committee call for no special remark—in each it was a case of "easy all."

THE STABILITY OF ALKALOIDAL TINCTURES.

At 11.45 Mr. Farr had the honour of "drawing first blood" with a "Note on the Stability of the Alkaloidal Tinctures" by himself and his colleague Mr. R. Wright.

This is, of course, a vital question, for if the preparations are not stable, the tendency of the day in favour of more general standardisation would receive a serious blow. Mr. Farr's communication was reassuring: with the exception of tinct. veratrum viride and tinct. cinchonæ, the quantities of principles capable of being estimated were practically identical with figures given by the same tinctures over varying intervals of time, extending in some cases as far back as three years.

And in the tinctures of green hellebore and cinchona the deficiency was accounted for by the deposition of matter which these tinctures invariably show.

ALKALOIDAL TINCTURES.

At 11.55 Mr. Wright gave the second contribution of the partnership—a critical comparison of "Gravimetric and Volumetric Methods for the Detection of the Alkaloids in Alkaloidal Tinctures." The paper was practically a vindication of the authors' previous work, for a Transatlantic author—Caspari—had upheld volumetric methods of estimation and decried gravimetric, and Messrs. Farr and Wright's long series of estimations had been recorded in gravimetric terms. In the majority of cases estimation by weight of the active principles was shown to be the more reliable; aconite and colchicum especially were shown to be unsuitable for volumetric estimation. Difficulties cropped up also with cinchona, and though the admission was made that in some cases—notably the mydriatic drugs, jaborandi, nux vomica,

lobelia, and opium—volumetric methods were useful to check gravimetric results, yet on the whole the latter are the more reliable. The authors favour Spiegel's formula for gelsemine as against Gerrard's, the difference between them being C_2H_2O .

The two papers were discussed together, general satisfaction with the results being the keynote of the remarks, with opinions in favour of volumetric and of gravimetric estimations, and a timely reminder that it is impossible to estimate the clinical value of a tincture solely by its alkaloidal content, thrown in as make-weights.

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COCOANUT STEARIN.

Resuming after lunch the paper on "Cocoanut Stearin," by Mr. Thompson, was read by Mr. Naylor. The proposal to employ cocoanut stearin as a basis for suppositories has recently come up for renewed discussion; the latest edition of "Squire's Companion" had a note on it, and the question as to its suitability figured in the Blue-list. Brady, in 1866, broached the idea, and now Mr. C. J. S. Thompson speaks

very favourably of it. His mixture of white wax and stearin melts at 98° F., and becomes solid at 64° F. Its low solidifying-point, the facility with which it may be combined with vegetable extracts, and its property of remaining free from rancidity, it was thought, would go far to bring it into favour with the dispenser. The Chairman said cacao-butter was absolutely irreproachable as a basis, and warmly combated the conclusions of the author. Mr. Gerrard confirmed Mr. Martin, though he qualified his remarks by the statement that theobroma oil does become rancid—witness its white appearance when kept. Messrs. Martindale and Umney bore similar testimony, but the latter said the margin of the melting-points in the B.P. was too great.

PHOSPHORUS PILL.

Time and again the exhibition of phosphorus in pill form has taxed the manipulative skill of pharmacists. Mr. Parker now comes along to tell us that our fats, waxes, greases, and oils, are mistakes, and the phosphorus does not oxidise in pills which are massed with vegetable powders, and which, more surprising still, are not coated. The latter point was demonstrated by estimation of the phosphorus in the pills which had been kept for three months, and an historical sample, which had been made six years ago, still retains its phosphorescent properties. An intelligent discussion followed, in which the dons of pharmacy had something to say for their respective formulæ for phosphorus pills. A question was raised as to the value of amorphous phosphorus, which has recently been urged as a substitute for unoxidised P, possessing equal medicinal value; but the statement was not substantiated by the experience of pharmacists. The President was again in a combative mood, but Mr. Parker was irrepressible.

OFFICIAL NOMENCLATURE.

Assembled in the hall of Balliol—the place of all others devoted to the study of the classics—it was fit and proper that pharmacy should contribute at least one academic paper during its temporary occupancy of that hall. That paper was supplied by Mr. Joseph Ince, who gave a *resumé* of the rules by which the nomenclature of official remedies are governed. Mr. Atkins expressed the sentiment of the meeting in the obvious connection between the subject and the location, and, though Mr. Martindale demurred to the declension of latinised names, Mr. Ince's dictum that we should shun the so-called "dog-Latin," and maintain as far as possible the purity of the classics, was very well received.

ENGLISH-GROWN MEDICINAL PLANTS.

Mr. Usher, of Banbury, gave some interesting historical details of the cultivation of English rhubarb, which, according to his experience, is growing in favour after a lengthy period of prejudice. Part of this prejudice he attributes to a want of uniformity in the plant as it used to be grown when raised from seed. He finds it better to raise all his rhubarb from offsets. With regard to henbane, he pointed out the desirability of new Pharmacopœia definitions, distinguishing not only between the annual and biennial varieties, but also between the first and second year's growth of the latter, and between all these and the German.

Mr. Druce drew a parallel between the experiments conducted as to variations in animals by the late Professor Romanes and the observations that fell from Mr. Usher on the permanent characters assumed by plants after hybridisation. Mr. Ransom pointed out as a curious fact that English-grown rhubarb was about the only example of a home-grown drug which has the reputation of being less valuable than the imported article. Mr. Gerrard pins his faith to the

first year's root of the biennial henbane for obtaining a good yield of alkaloid. Mr. Usher appeared after his papers had been read, and gave the members the secret by means of which he had been able to preserve his henbane from the destructive attacks of insects.

PAPERS TAKEN AS READ.

As it was now 4 o'clock, the House of Commons method had to be adopted with the remainder of the papers, consequently the following were taken as read:—

1. "Tinct. Ergotæ Ammon.," by J. T. Hornblower.
2. "Notes on Rhubarb," by Barnard S. Proctor, F.I.C.
3. "The Adaptation of the Soap-basis of Lin. Potass. Iodid. c. Sapone to some other B.P. Liniments," by E. W. Lucas.
4. "Tincture of Iodine and its Analysis," by J. F. Liverseege, F.I.C.
5. "The Calibration of Pipettes," by J. F. Liverseege, F.I.C.
6. "Extract of Indian Hemp," by David Hooper, F.I.C., &c.
7. "Some Fallacies in the Testing of Essence of Lemon," by Arthur A. Barrett.

Mr. Hornblower finds that tinct. ergotæ amm. with spt. ammon. aromat. as a menstruum] remains clear when diluted with water, because the fixed oil of the ergot is saponified by the ammonia, and the soap suspends the essential oils of the sal volatile.

Mr. Proctor's paper contains an immense amount of detailed experimental work, with notes on "Rhubarb." Like another grand old man, this eminent pharmacist, in view of the approaching twilight, "invites others to take up the work where he lays down the tools."

Mr. Lucas has attacked one of the questions on the Blue-list in his attempt to adapt the base of iodide of potassium and soap to other liniments; how far he has succeeded was not divulged.

Mr. Liverseege has examined a number of graduated pipettes of English and foreign make, the latter being calibrated for metric estimations. He finds rather important variations from accuracy in the British pipettes, while only two out of seventeen of the metric ones were accurate, though one-third of the series came within one-tenth of 1 per cent. of error, which is regarded by Fresenius as allowable.

EXTRACT OF INDIAN HEMP.

Mr. David Hooper's paper, representing a large amount of work, dealt with extracts of Indian hemp, and compared the ganjas obtained from various parts of India. The Bengal samples yielded the largest proportion of extract. An important observation was the fact that ganjas always lose their strength by keeping, and many dealers in India consider the drug worthless after being kept for three years.

Mr. Barrett, of Messina, shows that the polarimeter is not a reliable test for turpentine in essence of lemon. The rotation of pure essences varies according to the districts in which they are produced far more than turpentine can make it. Other recommended tests are not much better, but Mr. Barrett believes a true chemical one will come soon, though he seems rather vague about it at present.

The concluding business of the Conference was rapidly got through, and the conclusion of the whole matter may be summarised by saying that the papers were as pharmaceutical as one could wish; the discussions were brisk and full; and the attendances were good, in spite of the outside attractions.

CLARKE'S PYRAMID AND FAIRY LIGHT COMPANY (LIMITED), of Cricklewood, are making an offer of a free supply of pyramid and fairy lamps to the trade on certain specified conditions. Chemists who care to take advantage of this proposal should look to it promptly.

Bankruptcies and Failures.

Re M. F. THOMSON, 17 Gordon Street, Glasgow, Chemist.

A MEETING of the creditors of this debtor was held in the Accountants' Hall, Glasgow, on July 25. The liabilities amount to 3,952*l.* and the assets to 1,294*l.* 1*s.* 10*d.* The following are the principal creditors:—

	£	s.	d.
Banks & Co., Glasgow	79	16	4
Emmerson Bros., London	50	0	0
Glasgow Apothecaries' Company, Glasgow	31	8	4
Gordon, Isaac, Glasgow	1,149	15	0
Harrison & Wade	41	8	0
Hatriek, W. & R., & Co., Glasgow	63	17	9
King, J. G., & Son, London	119	15	9
Macduff & Co., Glasgow	78	11	4
Maclure, Macdonald & Co., Glasgow	54	11	6
Miller, Alexander	200	0	0
Miller, Mrs.	100	0	0
Mollison, Ness & Co., Glasgow	30	0	0
Seriven, H. W., London	147	3	10
Sharp, A. F., & Co., Glasgow	36	9	0
Thompson, Thomas, Glasgow	200	0	0
Watson, Charles P., Glasgow	85	7	0
York Glass Company (Limited), York	34	7	10

Re WALTER PATTERSON CARR, Berwick-on-Tweed, Chemist.

On July 24, this debtor came before Mr. Registrar Ingle-dew at the Newcastle Bankruptcy Court for examination. He had carried on his present businesses for about eighteen years. Some ten or twelve years ago he became insolvent, but made a private arrangement with his then creditors, and having substantial assets he paid a reasonable dividend. Debtor had also carried on a cod-liver oil business; this was now managed by his wife. He had made a marriage settlement on his wife, but he did not know who the trustees were. He married his present wife about seven years ago. His gross liabilities were 583*l.* 3*s.* 4*d.*, and the assets 2*l.* 5*s.* The examination was adjourned until August 16.

The following are creditors:—

	£	s.	d.
Acme Chemical Company (Limited), Tonbridge	10	0	0
Carr, M. J. K., Berwick-on-Tweed	200	0	0
Carter's Medicine Company, London	248	0	0
Kemble & Co., London	80	0	0

Re HENRY MATTHEW ROBERTON, of Northfield End, Henley-on-Thames, Oxford, lately carrying on business at 11 East Street, Walworth, S.E., Chemist and Druggist.

THE particulars of this failure have been announced. The amount expected to rank for dividend is 234*l.* 15*s.* 7*d.*, and the assets (after providing for preferential claims) are 821*l.* 14*s.* 1*d.*, showing a surplus of 586*l.* 18*s.* 6*d.* The Official Receiver remarks:—"The receiving-order was made on July 7, 1894, on the petition of Messrs. Baiss Brothers & Co., the act of bankruptcy being non-compliance with the requirements of a bankruptcy notice. The debtor states that he carried on business as a chemist and druggist at 11 East Street, Walworth, up to three years ago, when he handed the business over to his son, who still carries it on, he agreeing to allow the debtor 3*l.* 10*s.* per week, but now only pays 2*l.* 10*s.* per week, as he states that business is bad. In his statement of affairs, the particulars of the assets are:—Life policies, 20*l.*; value of leasehold premises, 50*l.*; interest under indenture (agreement with the son), 100*l.*; life interest under will of Frances Amelia Robertson, who died about eighteen years ago, being the income derived from 1,760*l.* Great Indian Peninsular Railway, 450*l.*; arrears of payments due from the son, 25*l.*; amount payable by the son (G. S. Robertson), the debt due to Baiss Brothers, having been incurred by the debtor (so he states) for the benefit of and at the request of G. S. Robertson, 128*l.* 12*s.* 1*d.*; another debt similarly incurred, 60*l.*; total, 833*l.* 12*s.* 1*d.*" The Official Receiver adds that it is only fair to Mr. G. S. Robertson to say that he

denies his indebtedness to his father in the sum of 100*l.*, or in any other sum whatever. This will be investigated.

Re WALTER WRIGHT, of 27 High Street, Chelmsford, trading as Baker & Wright, chemist and druggist.

MR. CECIL MERCER, Official Receiver for the Chelmsford district, has issued particulars of this failure. The gross liabilities are 5,265*l.* 17*s.* 2*d.*, of which 4,269*l.* 9*s.* 8*d.* is expected to rank for dividend. The assets are: stock in-trade, 500*l.*; furniture, 250*l.*; cash in hand, 9*l.* 10*s.* 7*d.*; one share in Chemist Aerated Water Company, 1*l.* 5*s.*; money in hand of sheriff, 35*l.* 18*s.* 7*d.*; book-debts (good), 405*l.* 3*s.* 2*d.*; total, 1,201*l.* 17*s.* 4*d.* From this has to be deducted 81*l.* 7*s.* 6*d.* for preferential claims, leaving assets, 1,120*l.* 9*s.* 10*d.*, and the deficiency, 3,148*l.* 19*s.* 10*d.* The receiving order was made on the debtor's own petition, and is dated July 6 last. The Official Receiver states that the debtor is a chemist and druggist, carrying on business at Chelmsford. It appears that in May, 1884, he agreed to purchase from Mr. Garrard Baker, a half-share in the business then carried on by the latter at Chelmsford, with the right at the expiration of five years to purchase the remaining half-share. The purchase money for such moiety was 1,350*l.* To enable him to do this, the debtor borrowed from the Eagle Insurance Company, on the guarantee of a gentleman (Mr. Wm. Robt. Barker) now deceased, the amount of such purchase money. The business was then carried on under the style of "Baker & Wright," and the partnership continued until May, 1889, when he purchased from Mr. Barker the remaining half-share for 1,350*l.*, and Mr. Barker retiring from the business, the partnership ceased. Mr. Barker, about the time of the purchase by the debtor of the second half-share of the business, agreed to pay off the amount due to the Eagle Insurance Company, and to advance him the further sum of 1,350*l.*, which he did. To secure the money then owing to Mr. Barker, the debtor executed a mortgage of the lease of 27 High Street, Chelmsford, with the goodwill and trade fixtures, and also assigned to him two policies in the Eagle Insurance Company of 500*l.* and 2,000*l.* respectively, and covenanted to repay the principal moneys by quarterly instalments of 125*l.*, and interest at the rate of 5*l.* per cent. per annum. There is now due to Mr. Barker's executors, in respect of such securities, the sum of 3,322*l.*, the securities being valued at 900*l.* in all, leaving—according to the debtor's computation—2,422*l.* unsecured. A firm of bankers at Chelmsford hold an assignment of another policy in the Eagle Insurance Company for the sum of 1,000*l.* This policy is valued at 15*l.*, the amount owing to the bankers being 320*l.* 14*s.* 4*d.* The debtor states that the immediate cause of his failure was an action brought against him by the executors of the late Mr. Barker for payment of arrears of instalments amounting to 300*l.*, which he was unable to meet. He also attributes his position to the fact of his having agreed to repay the principal moneys due to the late Mr. Barker by larger instalments than the profits of the business would bear; and also to reduced profits in consequence of general depression in trade, and competition. By far the greater proportion of the debtor's unsecured liabilities are for goods which appear to have been bought mostly this year. The Official Receiver adds: "The business is being carried on by me up to the date of the first meeting of creditors, as there would seem to be some good-will, although the same would apparently belong to the executors of the late Mr. Barker, the lease, as before mentioned, being included in their security given by the debtor."

"MRS. SMITHERS," said the dentist severely, "I have pulled teeth for a good many patients, but I have never heard anyone holler as you do." "Perhaps it was a holler tooth," suggested the poor woman meekly.

THE LADY CANDIDATE.—The following letter, says the *Pall Mall Gazette*, was received by one of the examiners at the recent examination for a medical diploma, and was written by a feminine student of medicine:—

"SIR,—Don't you dare refuse me again in physiology when you know I know all about physiology; I very likely know more than you do. I shall write to Mr. — if you do about it. Very soon Doctors will be drawn only from the pure noble-minded women, and you vile drunken filthy men expelled for ever.

(Signed) "—"

THE BRITISH MEDICAL ASSOCIATION.

NOTES OF THE "ANNUAL MUSEUM."

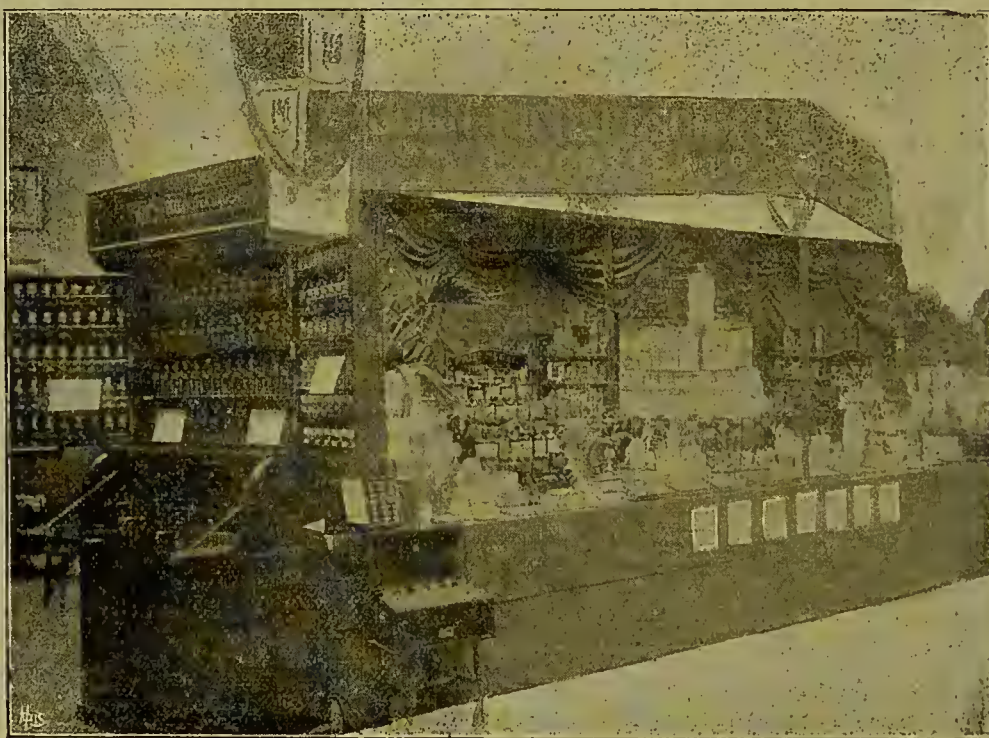
WHILE these pages are in the press the 62nd annual meeting of the British Medical Association is taking place in Bristol, under the presidency of Dr. Long Fox. As usual, an exhibition, or to adopt the B.M.A. phraseology, a "Museum" is held in connection with the gathering. The Clifton Drill Hall has been placed at the Association's disposal for this purpose, and some 130 exhibitors, most of them closely connected with pharmacy, take part in the show. A CHEMIST AND DRUGGIST representative, who went down to take some notes, found that the chief feature of the exhibition was a beautiful collection of Roman surgical instruments and "druggists' sundries," most of them recovered from the ruins of Pompeii, and shown under the auspices of Messrs. Oppenheimer, Son & Co. (Limited). This collection will be referred to in detail in an illustrated article in our next issue. Meanwhile the following references to the shows of the principal exhibitors may prove of interest:—

One of the most interesting exhibits is that of FRED.

the retail chemist, and he is the only person with whom we deal."

Immediately to the left at the entrance is the large stand, draped in red, of JOHN RICHARDSON & Co., Leicester (Limited), one of the handsomest in the building. It contains specimens of practically all the pharmaceutical preparations of the house, the central position being devoted to the well-known pearl-coated pills, the colours of which impart additional brilliancy to the display. Samples of the various soaps made by the firm are placed along the foot of the pill-trophy, and below these there is a nicely arranged show of capsules. The firm now manufacture several preparations such as aloin, podophyllin resin, leptandrin and scammony, all of which are shown. Capsules of *pot. bichrom.* each containing $\frac{1}{10}$ gr., and designed specially for administration in cases of gastritis and kindred ailments, are exhibited for the first time. So are the tablets of perchloride of mercury, each of which bears the word "poison" on either side. The sides of the exhibit are decorated with excellent portraits of medical celebrities, the fine head of Dr. Fox, the President of the Association, being among the number.

In addition to their pharmaceutical goods the firm have a considerable show of surgical instruments and orthopaedic appliances.



STEARNS & Co., of Detroit, which adjoins that of Inomas Christy & Co., who act as the firm's agents in this country. The centre-piece of the stand is a small tube containing a pale brown substance in tiny crystals, to which has been given the name of "Panjecorine." The substance consists of the alkaloids of cod-liver oil, and is the result of the labours of MM. Gautier and Morgues, two French chemists, who have spent a considerable amount of time in cod-liver-oil research. The principal alkaloid in the oil is morrhaine; next comes aselline. Up to the present it has not been found possible to separate the alkaloids, which are here shown in combination. It is claimed that "Panjecorine" possesses two thousand times the strength of the ordinary cod-liver oil. Cod-liver-oil preparations are among the leading articles of Messrs. Stearns & Co., and in the firm's "wine of cod-liver oil," which is also shown, the question of producing an absolutely palatable article, containing 25 per cent. of oil, as represented by its active medicinal constituents, has, it is said, been solved. Messrs. Stearns & Co. give considerable publicity to their "platform," the chief planks in which are that they never advertise their goods to the laity and that they ask for such patronage of the profession as is "bestowed through the usual ethical channels." "Does that mean that you do not sell to medical men?" we asked.

"Certainly," said the manager, "the ethical channel is

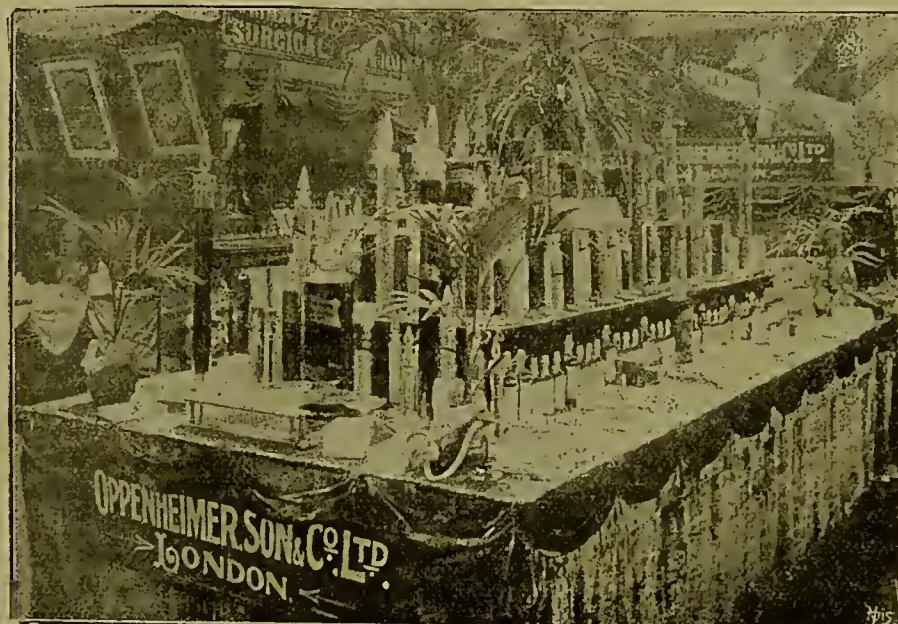
Next to Messrs. Richardson's stand F. CANTON & Co., of Great Tower Street, London, show their grape-brandies. The only kind of French brandy which they employ is that produced before 1878, the year in which the vines in the Cognac district were almost destroyed by the phylloxera. So-called "Cognac brandy" made subsequent to 1878, they say, consists to a very large extent of potato-spirit and other foreign matter, and they therefore refuse to use it. Ante-'78 Cognac is the basis of all their goods, but in many cases brandies from other countries are used as blends.

THE SANITARY WOOD-WOOL COMPANY (LIMITED), 26 Thavies Inn, London, have a big display of Hartmann's wood-wool preparations. One of the chief articles of this class shown is the antiseptic wood-wool tissue, consisting of a continuous roll of wood-wool wadding between two pieces of sublimate gauze. Pads of any required size can be obtained by simply cutting them off with the scissors. The firm are showing here, for the first time, a sterilised catgut drainage-tube, of which they hope that it will largely supersede the bone or indiarubber tubes now on the market. The "guinea outfit for accouchement," containing a number of sheets, towlettes, a box of oiled silk, and a pamphlet of "hints," is also a new feature. A good discount, we are told, is allowed to pharmacists who will stock the "outfit." The Wood-wool Company have lent a corner of their

stand Mr. THOMAS BAHLEN, of 50 Holborn Viaduct, E.C., who is introducing into this country Bergenau's kola peptone biscuits. These biscuits contain 10-per-cent. of kola in combination with 5 per cent. of meat peptone, obtained by digestion with papaya. The taste of the biscuits is not unpleasant. F. J. REBMAN, 11 Adam Street, London, W., has a most interesting show of medical publications, among which the splendid works produced by the F. A. Davis Company, of Philadelphia, represented in this country by Mr. Rebman, are most prominent. We particularly noticed Starr's "Diseases of Women and Children," and Baldy's "Gynecology," standard works of their kind, lavishly illustrated with woodcuts and coloured plates. Such books cannot be published on business principles in this country, but in the States, where medical men are more liberal book-buyers than they are here, their production is profitable. ARMOUR & Co., of Chicago, have a rather more modest show than one would have expected from so large a firm. Pepsin is, of course, the principal one of their preparations here exhibited. It is shown in scales, in insoluble powder, in granular form, and in soluble powder. Its strength has been increased to five times that required by the B.P., instead of four times that figure. The soluble pepsin is exceedingly dry, and can be rubbed between the hands without caking in the least—a rough indication that the hygro-

GEO. GALE & SONS, of Leeds, associate most of their specialities with the name of Lawson Tait. A bedstead, with a detachable arrangement for raising invalids, is ingenious; and so is the "clipoid" arrangement for converting lath or woven-wire bedsteads into others of the "Lawson Tait" system. The trade-mark of the firm is somewhat remarkable, as it represents a reproduction of a photograph of five men (whose aggregate weight is given as 780 lbs.) standing on one of the "Dominion" wire spring-mattresses, which bears the strain without apparent difficulty. B. MAGGS & Co., of Clifton, a local firm, have an interesting show of their purified materials for bedding. It contains specimens of white and coloured feathers both natural and purified, and of wool in various stages of impurity and cleanliness. The object of the exhibit is to impress upon visitors the dangers of using bedding composed of undescribed corded materials of which no guarantee of purity is given.

DOWIE & MARSHALL, of 455 Strand, London, are manufacturers of surgical soles and sandals, boots for deformed feet, and shoes constructed upon hygienic principles. Broad-toed boots showing a straight line on the inside from the instep to the toe are shown in contrast with fashionable garments of the same class, and a small collection of Indian slippers renders the absurd shape of some, now obsolete European dress and dancing-shoe beside them, the more ridiculous.



scopic peptone, which is unavoidably formed in the preparation of the pepsin itself, has been removed. Messrs. Armour & Co. also show dessicated sheep's thyroids, 6 grs. of which represent the active principles of the entire gland. Iced beef-extract is dispensed at the stand, and a little book of "Culinary Wrinkles" on the subject of that useful article is in much demand among the ladies visiting the Exhibition. The little card on which the total output of the firm's products is given has, unfortunately, not yet been carried up to a later date than March 31, 1891.

DOWN BROTHERS, 5 to 7 St. Thomas's Street, London, S.E., may claim to have the biggest show of surgical instruments in the hall. It would be quite impossible to enumerate here even a fraction of the articles which are displayed upon their show-table, but we may mention that with them, as with the majority of other surgical instrument exhibitors, the chief novelty lies in the increased popularity of aseptic instruments either forged out of a single piece of steel or so constructed that they may easily be taken to pieces and cleansed. Separated by the gangway from their main exhibit, Down Brothers have prepared a small room fitted with a complete set of aseptic hospital furniture.

ALFRED CARTER (LIMITED), 47 Holborn Viaduct, London, have a very large exhibit of invalid furniture, the chief objects of interest in which are the "Farrington" invalid couch and a new pattern of North's reading-machine, both dating from last year. An aseptic table, manufactured entirely out of glass and iron, is also a prominent feature of the exhibit.

OPPENHEIMER, SON & Co. (LIMITED), 14 Worship Street, E.C., have a large stand at the University College Road entrance of the Drill Hall in addition to the "Pompeian" Room, which they possess all to themselves. The stand is a very handsome one, the prevailing tones of its decorations being a dull pinkish-brown and a rich green. The preparations are arranged in three rows, the bottom one consisting entirely of concentrated liquors, and the middle and top ones of bottles containing various digestive ferments, and palatinoids and bi-palatinoids. The smallest palatinoid yet manufactured is shown here. It is about the size of a well-grown ladybird, and grey in colour. Aloin, belladonna, strychnia, and ipecac. form its component parts, and it has received a registered trade-name all to itself, being known as the "Lapactic." Among their fifty-one varieties of soluble hypodermic tablets the firm show one consisting of 1 gr. of sulphate of magnesia, the idea being to produce the cathartic action without the stomachic disturbance that so often attends the administration of Epsom salts. The range of pepsins shown at this stand is very wide—viz., from B.P. strength up to 30,000.

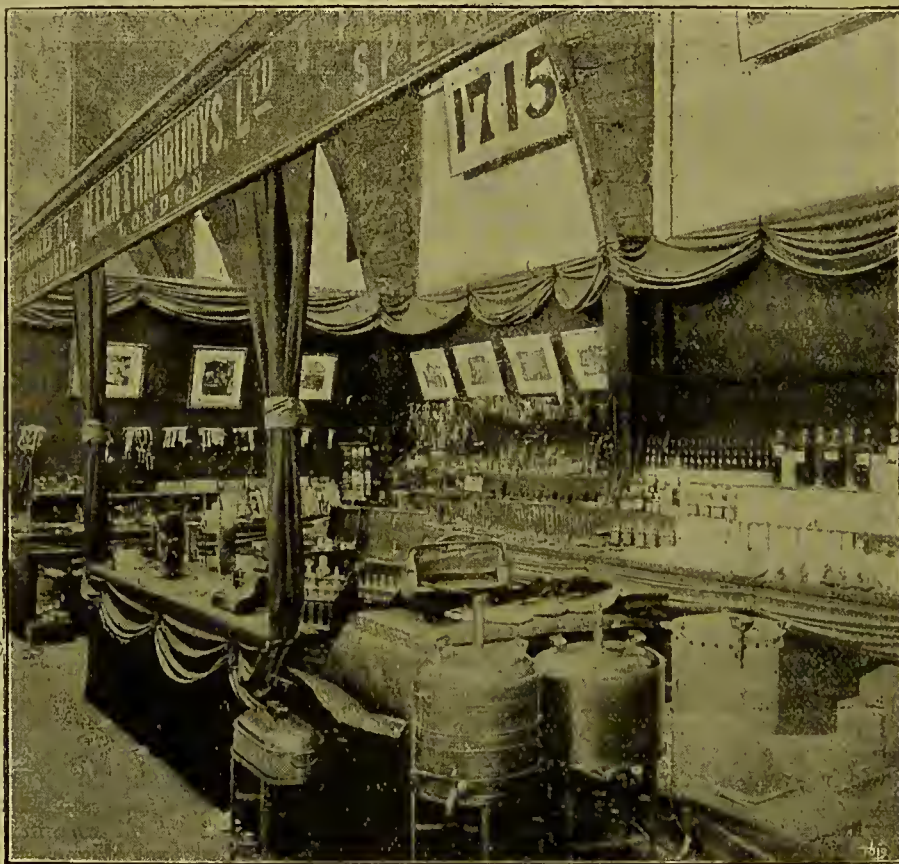
A goodly pile of copies of the "Supplement" inserted in a recent issue of THE CHEMIST AND DRUGGIST attracted our attention to the handsome stand of PARKE, DAVIS & Co., of 21 North Audley Street, London. The arrangement of this exhibit differs somewhat from most of the others in being rather higher than it is wide, and in the somewhat original manner of its drapery-decoration. A model of an automatic

pepsine-testing apparatus takes up considerable space, while another large slice of the exhibit is taken up by the well-known fluid extracts and the standardised B.P. tinctures of the firm. Mosquera's products, such as solid and fluid beef jelly, beef meal, and beef-cocoa, are also in evidence.

ALLEN & HANBURY'S (LIMITED), Plough Court, Lombard Street, London, occupy a very large stand draped in navy blue and yellow. Overhead the figures 1715-1894 remind us that the famous house are already well on their way to their bicentenary. At the back the exhibit is partly devoted to pharmaceutical preparations and partly to surgical instruments, of which there is an excellent show. The remaining space is filled in with pharmaceutical and medical apparatus of all kinds, grouped around a glass case of surgical appliances. The "Mothers' Milk Food" business has recently undergone considerable extension, and is now manufactured in three varieties, No. 1 being specially suited for infants from birth until the age of three or four months, and No. 2 from that time up to about seven months, when No. 3 steps in and should be adhered to until the time

the proprietor of what is known as the "PP" pessary, which is a pessary of compound iodoform for use after confinement. Buxton's chloride-of-ammonium inhaler is another of this firm's specialities. Its particular advantage lies in the fact that it yields a copious supply of neutral vapour which does not pass through any indiarubber tubes.

S. KUTNOW & Co, 66 Holborn Viaduct, London, show as a speciality the natural Carlsbad sprudel salt, recovered from the spring, and offered here in powdered form. The salt is recommended on the ground of its portability and economy. It is said to have been freed from all traces of sulphate of potash. Anti-asthmatic cigarettes and powder also rank among Mr. Kuttman's specialities. The latter is stated to contain neither lobelia nor datura tatula, and the cigarettes are said to have been prepared at the suggestion of the late Sir Andrew Clark. The powder should be put on a plate (a small teaspoonful is a dose), lighted, and the smoke inhaled by holding the mouth over it. Mr. Kutnow is at present engaged in extensive litigation in the United States, where his Carlsbad trademarks are attacked, but he assured us that the four actions



comes for feeding the child on ordinary alimentary substances. The constituents of the No. 1 food are those of human milk pure and simple, but in No. 2 a certain proportion of farinaceous substances is also introduced. Bynol and nice-looking dishes of jujubes make up a good display in this department. The use of aluminium in surgical-instrument making is steadily extending, and in Messrs. Allen & Hanbury's exhibit a large number of surgical instruments are shown in which use has been made of the many advantages of that metal. Quite a novelty in the surgical appliances line is Dr Tucker Wise's spring-tape for measuring the respiratory movements of the chest. It consists of a steel measuring-tape, round which a wire spring is loosely wound. When the tape has been placed round the chest the wire spring is closed with a hook-and-button fastening, and the movement of the figures below the spring, as the chest heaves up and down, enables the physician to compare the relative falling and swelling of one side with the other in a single observation.

Some portion of this large stand has been let to Mr. T. BUXTON, 2 Royal Promenade, Clifton, who manufactures several specialities which he exhibits here. Mr. Buxton is

now pending are all proceeding satisfactorily from his point of view.

Adjoining Mr. Kutnow's stand is that of Mr. HOFF, otherwise known as "the Hamburg Hoff," of malt-extract notoriety. His agent was very wroth with the pharmaceutical craft, and delivered himself of a long tirade against chemists and their business methods, waxing increasingly angry as he proceeded. "De last man," said Mr. Hoff's comment—"de last man ve want to do wis, he is de chemeest. Dey are not worsy of being gossident. Vy, not long ago ve brought out a stadew at enormous expense, and ve sent it to some chemeests. De stadew he was a liddle dwarf wis a pottle of Hoff's extract in his arms—so; like a papy! And de chemeests vat dit sey do? Sey put seir own pottles in de dwarf's arms, and in one case I saw my liddle dwarf clat up as Faser Gristmas! Dat was 1,500% trown in ze cutter!"

And so the Hamburg Hoff went on, assuring us that he now wants to push the extract entirely through medical men, and thus compel the chemist to supply it. When it was mildly suggested to him that pharmacists would, perhaps, be interested in knowing the Malt-man's opinions

of their craft, he vowed that he did not care if they did, and not wishing to excite him further, we left the stand.

THE FRAME FOOD COMPANY (LIMITED), Battersea, London, occupy a good-sized stand, all draped in red. The company's food is the nutritious matter extracted from the cellulose of wheat-bran, and containing over 10 per cent. of phosphates. Being soluble and easily digestible, it may be added to flour, for baking, to cocoa, or, as a meat-extract substitute, to soups and gravies. The "frame-food" stamina tablets consist of the powdered "food," mixed with sugar, and made into flat octagonal lozenges, about an inch long. "A meal to be carried in the waistcoat pocket" is the legend on the box, the stamina-tablets being somewhat of a foretaste of the food-supply of the coming ages, when, according to M. Bertholet, man shall carry a small-box tablet of prepared nitrogen with him to supply all his wants of nutriment. "Diabetic-biscuits," composed of gluten flour, eggs, and frame-food extract, are a new addition to the firm's operations; but although a tin is shown at the Exhibition, no arrangements have yet been made for offering the preparation to the public. The cheapness of cereals has not been without influence upon the price of the "Frame-food" preparations, the retail price of the food having been reduced nearly 30 per cent. within the last eighteen months. Another preparation shown in close

to the hall was lined with boxes bearing the well-known brand, and containing table-waters for use at the *conversations* to be held in the evening. The stand bearing the goods of Idris & Co., and of the VIKING FOOD & ESSENCE Co., 33 King's Road, St. Pancras, N.W., is a large one, and throughout the day it was freely patronised by thirsty medicos and other visitors. The Viking preparations, besides the well-known beef tea, turtle soup, and essences, include Kopf's consolidated soup, the "South American" brand of Liebig's extract, and nutrient suppositories.

Food and delicacies for diabetics are shown by G. VAN ABBOTT & SONS, 6 Duke Street Mansions, Grosvenor Square, W. This is a small but nicely-arranged show, and illustrates the enormous advance that has been made during the last few years in ministering to the comfort of diabetic patients. In addition to the Gluten and Soya bread and biscuits, the stand contains quite a dozen varieties of tasteful biscuits and sweets, all of which may be given without danger to sufferers from diabetes. The introduction of saccharin has been a great boon to these unfortunates, and many of Messrs. van Abbott's delicacies are rendered more palatable by this sweetener. The "JOHANNIS" TABLE-WATER is arranged, as it mostly is at these Exhibitions, in two small pyramids, one at either end of the table, the interspace being devoted mainly to literature relating to the virtues of



proximity to the Frame-food is Horlick's malted milk, a sterilised milk food, free from starch and cane sugar, and guaranteed to keep in any climate. The chemical composition of the article is not unlike that of human milk, and the preparation appears well adapted as a food for infants and invalids. The proprietors are HORLICK & CO., 39 Snow Hill, London. Beakers containing malted milk with the addition of iodine, and malted milk with hydrochloric acid, were shown at the stand to prove the freedom from starch of the substance, and, by way of memento, letter-weights containing the portrait of a large-headed infant on a nest of straw, declaring itself to have been brought up on Horlick's food, were distributed to medical men and others.

THE FLITWICK CHALYBEATE COMPANY, 63 Borough High Street, London, who bring their waters into trade in the metropolis through Ingram & Royle, are the proprietors of a ferruginous medicinal spring in Bedfordshire, in which the iron occurs in the ferric state in conjunction with alumina, lime, and magnesia. The water is of a sherry-brown colour, and is, of course, especially useful in cases of chlorosis and anæmia. The modern mania to use famous paintings as advertisements has taken hold of the proprietors of the Flitwick waters, who have adapted Gainsborough's "Cottage Girl" for the purpose.

Although IDRIS & Co. do not exhibit as such, the visitor to the Exhibition on Tuesday could scarcely fail to observe the products of the firm, for the long narrow passage

the "king" of natural table-waters. Two small, but well-arranged, shows of microscopes, belonging respectively to CURRY & PAXTON, 195 Great Portland Street, London, and to ROSS & Co., 111 New Bond Street, London, W., bring us to the end of the gangway. Ross & Co.'s chief attraction is a series of their new "Eclipse" microscopes for students' and laboratory use. These are made in two patterns, and are very moderate in price.

The end of the table, just facing Ferris & Co.'s big show, is fittingly occupied by a local firm, A. & J. WARREN, 23 & 24 Redcliff Street, Bristol. The firm are well known in the West of England as wholesale druggists, and to *C. & D.* readers in general as frequent contributors on pharmaceutical topics in the correspondence columns of this journal. Every wholesale druggist has his own particular hobby, and Messrs. Warren, though they deal in drugs generally, pay particular attention to saffron, olive, and palm oils, and methylated spirits. They have a nice and tasteful exhibit, in which soaps and analytical chemicals are specially prominent. "Stoddart's sea-salts," of which they are the proprietors, are also shown; and Mr. Algernon Warren, in a delicate little leaflet, got up for the occasion, has had the happy inspiration to lay Tennyson's ode to the "Sea-king's Daughter" under contribution for a neat reference to his well-known sea-salts, "established nearly half a century &c., &c."

The honour of Bristol, as a city connected with medicine

and pharmacy, is well maintained by the old local firm of FERRIS & Co., of Union Street. The beautiful exhibit of this house occupies nearly the whole width of the Drill-Hall wall opposite the entrances. The mere enumeration of the items in the firm's exhibit occupies six closely-printed pages in the official catalogue, and it is, therefore, only possible to pick out of all this mass of surgical instruments and pharmaceutical preparations one or two objects of particular interest. One of these is Ferris & Co.'s "Ever-ready" plaster caddy, a box for keeping spread plasters, strapping, lint, antiseptic gauze, and other dressings in good condition, without waste, and in the smallest possible space always ready for use. The plasters, which are in a continuous piece, are wound on spools fitted into the caddy, which is 7 inches long, and holds seven or eight spools of various width to suit the different plasters. Refills are obtainable from the firm.

At the right wing of Ferris' exhibit is a case for opium and its preparations, which was not quite ready when we inspected the exhibition. Around it hangs a set of twelve water-colour drawings by some Chinese artist possessing, if not Hogarth's skill, at any rate a true Hogarthian fondness for moralising in images. The drawings illustrate the gradual undoing of a prosperous merchant who falls a victim to the opium-passion, and who ends by becoming an ashen-faced maniac, still smoking the fatal drug while his wife and child support him by manual labour.

B. KÜHN, of 36 St. Mary-at-Hill, London, has a varied show of pharmaceutical preparations, among which Dr. Finkler's papain takes a leading place. Mr. Kühn addresses the medical men in a circular, in which he refers to the increased sale of papain and to the attention which has been bestowed upon the preparation by pharmaceutical and other investigators, and adds some important reflections of his own to the papain-pepsin controversy. Mr. Kühn also shows Radlauer's preparations, for which he is the sole agent in this country, and of which he reports an increasing sale, especially observable in the case of somnal, the soporific. Dr. Bengué's ethyl chloride and anæsthetic are also shown at this stand. The former is useful as a local anæsthetic (quickly produced) and a cure for certain neuralgic affections; the latter, which evaporates at a lower temperature than ethyl chloride, is more suitable for extended surgical operations.

LORIMER & Co., Britannia Row, London, N., are represented by a large stand in the charge of Mr. Geo. N. Spyer. Coca wine is on draught in the centre of the exhibit, and every medical man presenting himself is asked to accept a 2-oz. sample bottle and a coca-wine pamphlet. In addition to the many other well-known pharmaceutical preparations of the house, a big show is made of Fels' germicide soap, an American preparation, for which the firm act as agents in this country. The soap is perfumed with methyl salicylate, eucalyptol, and naphthols, and as the mercuric chloride, to which the germicide action is due, is converted into an oleate when the soap is used, no corrosion is occasioned of steel instruments brought into contact with it.

The important soap and candle industry of Bristol is represented by CHR. THOMAS & BROTHERS (LIMITED), of the Broad Plain Soapworks. In addition to carbolic soaps, this firm have two specialities—viz., the "Assyrian" toilet soap and "Fripp's" olive-oil soap. The latter has already run a career of usefulness for over a century, and is especially recommended for use in eczema and other skin disorders. A. W. GRIFFIN, of Bath, shows nutritive suppositories from freshly peptonised English beef, which are recommended as being made by his original process, and of which one is said to be the alimentary equivalent of 2 oz. of meat. Mr. Griffin also assures us that patients have been sustained in life for over a year by the use of these suppositories alone.

"Is the Race Degenerating?" runs the question propounded by the CEREBOS SALT COMPANY (LIMITED), of Newcastle, and the sociologist of that concern, in a two-page leaflet, finds himself compelled to answer that solemn question with a sad affirmative. Blue-books, Labour Commission Reports, statistics of measurements in the Army and Navy, and other official storehouses of information are ransacked to tell the dismal tale of progressing racial degeneration. But the Cerebos statistician, after piling up agony paragraph by paragraph, and taking us to the brink of a future compared with which the late Dr. Pearson's forecast is cheerful, mere-

fully halts upon the brink of the precipice, and, producing a drum of "Cerebos" (6d., from all chemists and grocers), bids us be of good cheer. "Cerebos" salt contains the mixed phosphates of bran, which are almost entirely wanting in white bread, and, when mixed with the flour, imparts to the ordinary British household loaf all the alimentary excellence of wholemeal bread. It is certainly a beautiful salt, the colour being a very brilliant white, and the grain a very fine powder. "Cerebos" can be taken with meals in the ordinary way as a table-salt. It has no disagreeable taste whatever. "BOVININE," brought into commerce by a company of the same name (32 Snow Hill, E.C.), is one of the numerous beef-extract preparations which claim attention at every exhibition connected with pharmacy. "Bovinine," however, is older than most of its cousins (having been introduced in 1878), and claims, in fact, to be "the original raw-food extract." It is prepared by a cold process, and is said to contain 20 per cent. of coagulable albuminoids. It may be given as a food *per os* or *per rectum*, and is, moreover, recommended as a remedy against indolent ulcers, the *rationale* for this use being the absorptive power of its albuminoids. It is an American preparation.

While upon the subject of beef-products, we may call attention to a form of passive exhibiting which excites considerable comment, largely of a favourable kind, so far as medical visitors to the exhibition are concerned. We refer to the stall of the LIQUOR CARNIS COMPANY, of Aston Clinton, Bucks. Caffyn's malto- and liquor carnis, virol, and the other products of the firm have usually been represented at shows of this kind in considerable bulk. This year there is not a packet, bottle, or jar of them to be seen. The reason is explained by the directors in a card alliteratively headed, "silent scientific show *sine* samples." The legend on this document sets forth that free samples of the company's products are sent, twice yearly, to all medical men on the register, and that members of the Association may therefore reasonably be supposed to be familiar with them. Instead, therefore, of wearying them with a show of the well-known preparations, visitors are treated to five diagrams, suspended upon the walls of the stand, setting forth the results of the comparative analysis of virol and five other forms of food—to wit, human milk, cows' milk, cod-liver oil, condensed milk, and the best infants' food with cows' milk. A second diagram shows the relative digestibility of the same preparations; and a third microscopic representations (power 250) of virol, human milk, and an average emulsion. The other two are of a similar character. Mr. Shepperson, as might be expected from one associated with the slaughter of so many oxen, has boldly taken the bull by the horns, and it will be interesting to watch the result of his experiment.

ARTHUR & Co., 69 Berners Street, London, W., have a rather mixed assortment of goods, so varied, indeed, that it is difficult to say much about it in the space at our disposal. We will, therefore, just mention their "antiseptic handkerchiefs," made of tough absorbent Japanese paper, rendered aseptic with sublimate or carbolic, and perfumed with eucalyptus or other substances. They are cheap (3s. per 100 retail), and may, therefore, be expected to become popular, if we may use that word in this connection, with phthisic subjects, and in cases where washing cannot be done easily. They should be burnt after use. Most of the medicinal preparations shown here are made at the suggestion of medical practitioners, and many of them certainly possess the merit of originality.

G. STANDERWICK's cellular cloth (26-28 Stokes' Croft, Bristol), is a large show of porous cotton and wool under-clothing, for which particular hygienic advantages are claimed. Close to it CATER, STOFFELL & FORTT (LIMITED), of Bath, have a rather nice little show of Bath Oliver biscuits, and of Sulis water, the natural mineral water of Bath, famous way back in Roman times as *Aqua Sulis*. A very interesting pamphlet, treating historically of the Bath waters, is being distributed at this stand, or may be had from the firm.

The elegantly-arranged stand of JOHN WYETH & BROTHER, 30 Snow Hill, London, contains an instructive selection of the many pharmaceutical specialities of this firm, among which the compressed pills and powders, put up in parcels for dispensing purposes are specially noteworthy. The house—an American one—which has recently established a London branch office, claim to have been the

pioneers of compressed drugs. Their digestive ferments also form an important feature of the exhibit.

THE APOLLINARIS COMPANY (LIMITED), of 19 Regent Street, London, have a fine show of their three waters—Apollinaris, Friedrichshall, and the Hunyadi Janos. We note that since the Apollinaris Company undertook the sale

G. MELLIN, of Peckham, London (connected with the old-established French pharmacy of the same name in Piccadilly Circus), shows his food for infants, in which the starch has been converted into soluble products by the action of vegetable diastase, and his emulsion of cod-liver oil and hypophosphites, which contains 50 per cent. of the oil.



of the Friedrichshall water, the strength of that beverage, by improved means of capture at the springs, has been increased by nearly 25 per cent. Friedrichshall water is particularly recommended because, in many cases of habitual constipation, it may be used effectively in gradually diminishing doses.

Mellin's goods are made familiar to the public and the medical profession by the aid of a very ingenious system of advertising by means of card-cases, note-books, and the like. Early this year the firm used a "complete atlas of the world" as an advertisement. The atlas is a duodecimo booklet, containing a large number of maps, and was sent to



FELTOE & SMITH (LIMITED), 25 Augustus Street, Regent's Park, London, have a good show of their "specialité" lime-juice cordial, which is free from the musty flavour that so often renders the commercial article unpalatable. Their "lemon-squash" is made in this country from whole lemons, porcelain utensils being used for the reception of the juice.

anyone forwarding three half-pence in stamps for postage. It cannot fairly be said that its contents would receive the imprimatur of the Royal Geographical Society, but it served its purpose, and more, for after several millions had been disposed of in the course of a few weeks it was withdrawn from circulation.

BURROUGHS, WELCOME & Co.'s stand, near the entrance of the hall, leaves nothing to be desired in point of attraction and arrangement. The well-known products of the firm are tastefully set-off with palms and flowers, and the exhibit is surmounted by a few handsome Japanese Kakimonos, bearing suitable inscriptions. A separate table is occupied by the tea-tabloid exhibit, and here many thirsty souls refresh themselves during the afternoon. Mr. Rogers, who is managing this department for the firm, called our attention to an interesting collection of tea-specimens, showing the evolution of the tabloid. The specimens, four in number, are affixed to a card over the exhibit. They have been in the possession of a firm, well known in the tea-trade, for over sixty years, but no one knows how old they really are. The first is a small bunch of loose leaves, consisting of the young shoots of the best Chinese tea, loosely held together. This is the aboriginal tabloid. The next specimen consists of leaves, twisted rope-like. The one after that is an improvement upon the second, but in it the leaves are so tightly twisted that their quality must have suffered. The last specimen, the immediate precursor of the modern tabloid, is about three times the size of the latter, and shows the tea rolled up in the rather rough black ball. The exhibit is intended to illustrate the fact that some dim idea of the modern tabloid existed in the minds of the Chinese some generations ago.

small stand, at which they show their flexible capsules and iron jelloids, the two products of the firm which possess the greatest practical interest for medical men. EVANS, LESCHER & WEBB, 60 Bartholomew Close, London, have a very much larger show, containing specimens of their most important medicinal preparations, including essential oils, prepared by their firm, Savars' preparations and the "Montscrat" lime-juice. Among the drug-specimens shown at this stand, the most interesting is an entire plant of *Cephaelis Ipecacuanha*, grown at Singapore. SALAMON & Co. (LIMITED), Rainham, Essex, exhibit their chloroform and ether, which are now used by many leading practitioners in Britain and on the Continent.

The CAMWAL stand of fruit-syrups and mineral waters is one of the finest of its kind at the exhibition. Over 3,000 chemists are at present on the list of customers of the Association. T. HOWARD LLOYD & Co., Leicester, occupy an excellent position, and make a handsome show with their pearl-coated pills, compressed drugs in tablet form, and pharmaceutical preparations made according to special formulæ. C. J. HEWLETT & SON, WILLOWS, FRANCIS & BUTLER, and C. R. HARKER, STAGG & MORGAN also deserve mention among the metropolitan wholesale druggists, whose excellent displays contributed greatly to the success of the exhibition. STEPHEN SMITH & Co., of Bow, London, E., have an excellent show of Hall's coca wine, of which they are the pro-



THOMAS CHRISTY & Co.'s large stand contains a multitude of interesting pharmaceutical articles, many of them relating to drugs with which the name of the firm has been identified since the first introduction of the remedies into European commerce—such as cocaine, menthol, euphoria, kola, pichi, and the like. The N.W.K. *adepts lanæ*, of course, occupies a prominent position, and one of the most interesting collections in the entire hall is the exhibit of intermediate products in the manufacture of that article, showing the different stages from the waste-washing liquor, containing wool-fat, to the anhydrous wool-fat, which is the final product. The series consists of ten samples, and there is a subsidiary series of seven numbers, illustrating the chief preparations of *adepts lanæ* for toilet and veterinary purposes.

Our illustration (taken early in the morning) of the fine stand of HERTZ & COLLINGWOOD, 4 Sussex Place, Leadenhall Street, London, shows Mr. Hertz confidently awaiting the run upon his exhibit which took place later in the day. The firm's exhibits numbered only three—viz., natural mineral waters (Rosbach, Franz Josef, and Levico), coca tonic champagne, and Laurent-Perrier's "champagne sans-sucré," which forms the basis of the coca-tonic-champagne. During the day the exhibit was crowded with medical men desirous of information concerning the wines and waters. WARRICK BROTHERS 18 Old Swan Lane, London, have a

prietors. A flourishing young coca plant is a noteworthy feature of this exhibit. The wine contains, in every 2 oz., 1 dr. of the active and soluble constituents of the leaves. It contains (by weight) 15 per cent. of alcohol and 18.73 per cent. of total solid matter, mostly sugar and coca principles. WM. GLENDENNING & SONS, of Newcastle-on-Tyne, also show an excellent coca wine, but only as one among the many preparations of their firm, which include beef-and-malt wine (composed of port, Mosquera beef-jelly, and Kepler malt-extract), "Salzhach" table-water, and St. Hermes tannin wine, of which they are the sole importers. THE LIVERPOOL LINT COMPANY occupy a large space, beautifully arranged with an exhibit of their flax and cotton lints, bandages, and general dressings. The nickel-silver surgical-bandage pin, which is practically non-corrosive, also attracts a good deal of attention at this stand.

JEYES' SANITARY COMPOUNDS COMPANY, 43 Cannon Street, E.C., exhibit their usual list of disinfecting agents. A special display is, of course, made of the more refined preparations for surgical use, including creolin, creolin-powder (introduced as a substitute for iodoform), creolin-gauze, soap, and capsules. Attention is also attracted to a new preparation, "Symphorol"—coming from Germany, needless to say—which is highly recommended as a diuretic by Drs. Heinz and Liebrecht. Chemically, it appears to be caffeine sulphonic acid, and a pamphlet containing details of

experiments, with "Symphorol" is being widely circulated.

THE SANITAS COMPANY (LIMITED), Bethnal Green, E., have an unusually large number and variety of articles displayed. Fluids, oils, powders, soaps, &c., are present in endless variety, the basis of all, of course, being "Sanitas" itself, "Nature's only disinfectant," as Mr. Kingzett explains in his

Yerburgh Street, Manchester, to recover the sum of 3*l.* 15*s.* for copies of a monthly periodical called *Health Messenger* supplied. Judgment had been given for the defendant, and it was his allowance of 3*l.* which the plaintiff applied to the Court to have reduced, on the ground that it was unreasonable. He asserted that the plaintiff rode third-class when he was allowed for first, and that he was in London when he



book. Hospital and surgeons' dressings also are shown, and numerous articles for use in the sick-room or in domestic treatment. The various disinfectors and fumigators form a useful exhibit, and are interesting from their variety, while the anti-diphtherite, to which attention was called in THE CHEMIST AND DRUGGIST two weeks ago, comes in for special attention.

Legal Reports.

WARRANTY UNDER THE SALE OF FOOD AND DRUGS ACT.

IN the Queen's Bench Division on July 31, before Mr. Justice Mathew and Mr. Justice Kennedy, the case of *Rook v. Lindsay* came before the Court on a case stated by justices for Manchester. The defendant had been prosecuted under the Sale of Food and Drugs Act for selling as malt vinegar a vinegar to which it was proved 30 per cent. of water had been added. She pleaded warranty. She said she sold it as received; that the cask had on it a red-coloured printed label bearing the words "Vinegar warranted unadulterated—Grimble & Co. (Limited), Cumberland-market, London"; that the vinegar so sold by the appellant was invoiced to her as "Grimble's vinegar." She therefore claimed to be within the protection of section 25 of the Food and Drugs Act, 1875, and that such a label and invoice amounted to a written warranty within the meaning of the Act. The Magistrates held that the appellant was not within the protection of section 25 of the said Act, and convicted the appellant. The High Court now quashed the conviction, holding that there was a warranty within the meaning of the section.

MR. COMMISSIONER KERR ON CHEMISTS.

THE case of *Woods v. Handford*, reported from the City of London Court in the columns of THE CHEMIST AND DRUGGIST last week, has been settled. The action, it will be remembered, was brought by the plaintiff, Mr. Luke H. Woods, of 11, Ludgate Hill, E.C., who sued, among other chemists, the defendant, Mr. T. E. Handford, chemist,

sent his brother to say he could not leave Manchester. Mr. Commissioner Kerr decided to adjourn the case for the defendant's attendance, and allowed further costs of 2*l.* for the brother's costs. These have now been paid, and Mr. Woods has decided not to go further with the matter.

Deed of Arrangement.

The following deed of arrangement with creditors has been filed at the Bills of Sale Office, under the provisions of the Deeds of Arrangement Act, 1867. Some of these deeds are for the purpose of carrying out compositions with creditors (and such are specified below), but the great majority of them are "assignments" in the ordinary form, to a trustee or trustees, for the benefit of creditors. The Act referred to expressly provides that registration shall not give validity to any deed which is an act of bankruptcy, and there is no provision in the Act making any of these arrangements binding upon dissenting creditors.

Jessop, Arthur Rowland, 2 Bond Street, Hull, surgeon. Trustee, Arthur E. Peasegood, 8 Parliament Street, Hull, accountant. Dated July 26; filed July 28. Liabilities unsecured, 658*l.* 6*s.* 6*d.*; estimated net assets, 125*l.*; secured creditors, 20*l.*

					£	s.	d.
Benstead, Mrs., London	..	..	..	..	70	0	0
Cuthbert Alfred, Hull	..	..	..	..	50	0	0
Dyson & Son, Hull	..	..	..	..	12	0	0
Gale & Co., London	..	..	..	..	10	0	0
Hart, Thomas, Hull	..	..	..	..	50	0	0
Holder Brothers (Limited), Hull	..	..	..	..	16	0	0
Hull Finance & Investment Company, Hull	..	..	..	..	24	0	0
Jenkins, W., Hull	..	..	..	..	12	0	0
Martin, —, Hull	..	..	..	..	15	0	0
Maw, Till, Kirk & Co. (Limited), Hull	..	..	..	..	12	0	0
Pease & Son, Hull	..	..	..	..	299	0	0
Towler, J. T., Hull	..	..	..	..	45	0	0
Ward Brothers, York	..	..	..	..	11	0	0

A CHINESE proverb says that a druggist who buys and sells drugs should have two eyes, a physician who gives drugs to patients should have one eye, and a patient who takes drugs should be blind.—*West. Drug.*



Notice to Retail Buyers:—It should be remembered that the quotations in this section are invariably the lowest net cash prices actually paid for large quantities in bulk. In many cases allowances have to be added before ordinary prices can be ascertained. Frequently goods must be picked and sorted to suit the demands of the retail trade, causing much labour and the accumulation of rejections, not all of which are suitable even for manufacturing purposes.

It should also be recollected that for many articles the range of quality is very wide.

42 CANNON STREET, E.C., August 2.

The Liverpool Market.

Our Liverpool correspondent, writing on August 1, says that *Chilian Anise* is slightly easier owing to arrivals, and value is now 20s. to 24s. 6d. per cwt. according to quality. In *Gums*, *Soudan* sorts are moving off steadily at prices slightly favouring sellers, the present range of values being about 39s. to 45s. per cwt. Really good white friable gum is very scarce. *Canary-seed* has become steadier, and for the moment the bottom seems to have been reached, 50s. per quarter having been paid. *Honeys* are better for the Californian descriptions, the stocks of which are becoming smaller. For *Chilian* there is more inquiry, the better grades fetching fully late values, but the lower grades are offering more at prices which accord with buyers' views. *Chillies* (*Sierra Leone*) are steady at 35s. per cwt. for fine reds. *Spermaceti*: There has been an arrival of *Chilian*, but holders' views are unchanged—namely, 1s. 3½d. per lb. *Kola nuts*: For 3 bags just arrived 5½d. per lb. was realised at auction. *Beeswax*: Notwithstanding the heavier arrivals of *Chilian*, values have not fallen to any great extent, and sales of good yellow and grey mixed have been made at 7l. 5s. per cwt. *Guinea Grains* have been selling at 18s. 3d. per cwt., but since 19s. has been bid and refused for a parcel. *Castor oil* is easier at 2½d. ex quay to 2¾d. in store for *Calcutta good Seconds*; *Madras*, 2d. to 2¼d.; *First Pressing French*, 2¼d. to 2½d. per lb.

The American Drug-market.

Our New York correspondent, telegraphing on Wednesday night, informs us that the drug-market generally continues exceedingly heavy in tone. Business is limited to a very few orders for consumption, and most prices have a downward tendency. *HGH Oil of Peppermint* is lower, and offers at \$2.80 per lb. The crop prospects are thought to be very favourable. *Golden-seal* root is lower, and may now be had at 18c. per lb. *Senega-root* is also easier, at 28½c. for fair quality.

The New York Market.

Writing on July 18, our New York correspondent observes:—*Alcohol*: Notwithstanding that the House conferees insisted on making the tax \$1 per gallon instead of \$1.10 as provided in the Senate schedule, the trust have again advanced the price 4c. per gallon to \$2.30 per gallon for car-load lots, \$2.32 for 10 barrels and \$2.34 for less, all subject to the usual rebate of 7c. per proof gallon. *Angostura Tonca Beans*: The 96 packages (about 40,000 lbs.) which arrived per the *Irrawaddy* are still unsold, and though \$1.70 is asked, an offer considerably below that figure would doubtless be accepted. *Civet* is scarce and held higher at \$3 to \$4. *Coca-leaves* are in better request; a lot of about 1,200 lbs. *Huanoco* recently sold at 27c.; prime green *Truxillo* are held at 19c. to 20c.; 41 hales arrived per the *Allionca* from Peru. *Cocaine hydrochlorate* has been advanced by the various foreign agents 25c. per oz. to the bulk basis of \$4.80 per oz. Domestic is offered at 10c. to 15c.

ess. Dermatol has been reduced 8c. per oz. to 30c., and in bulk 5-lb. lots \$4.28 is the revised quotation, these being the present prices for subgallate of bismuth, which is now openly substituted by many. *Golden seal* is neglected at the moment, and 17½c. to 18c. has been quoted at interior points. In New York 19c. is lowest quotation named. *Honey* (*Californian*) shows a continued hardening tendency, and prices are firmly maintained at 6¾c. for prime quality; some inferior grades have been offered at 6¼c. to 6½c. *Hyposulphite of soda* is quite scarce and held high at \$1.85 to \$1.90 per 100 lbs. in kegs, and 10c. less in casks. *Jalap* inactive, but there is no change to note in holders' views. Quoted 17c. to 18c. The *Benedick* from Mexico brought 10 bales. *Oil* (*Peppermint*): Buyers are not giving the market much support, and prices if anything might be quoted lower. Prime Western, in cans, is offered at \$2 to \$2.10; Wayne Co., in cans, at \$2.25 to \$2.30; and H.G.H. has been sold at \$2.75. Exports for the week comprise 5 cases per *State of California* to Glasgow, and 10 cases per *Moravia* to Hamburg. *Sarsaparilla* (*Mexican*): The market is fairly well sustained in the face of full receipts. Eight and a half cents is the lowest open quotation. Some recent arrivals, it is intimated, could be bought at a trifle less. *Senega-root* is offered more freely from the West, and at easier prices; Prime Minnesota being offered at 31c., and Manitoba at 30c., freight paid to New York. *Serpentaria-root* has declined to 22c.

Smyrna Opium Telegram.

Our Smyrna correspondent wires on Wednesday that the opium-sales in the Smyrna market during the week amount to 37 cases, of which 25 were *Karahissar*, at the equivalent of 8s. 10d.; 10 fair tale-qual *Manufacturing* at 8s. 3d.; and two old selected at 8s. 6d. per lb., f.o.b. Smyrna.

British v. Continental Bleaching-powder in the United States.

The sudden reduction of the price of the Alkali Union's bleaching-powder in America (of which our New York correspondent informed us in a recent letter) has caused considerable surprise in chemical circles in that country. According to the *O., P., & D. Reporter*, various causes are assigned for the step. It is thought by some that the recently increasing importation of bleach from the Continent was the prime cause for the action of the English makers. That they do not relish this competition for the American trade may be accepted for granted, as formerly they had the trade all to themselves. When continental bleach was first being introduced into the States, the agents had a natural prejudice to overcome, and as some makes proved of inferior quality the sale did not increase rapidly until it became known which makes were fully up to requirements, and latterly these have been in demand, while the inferior ones have been withdrawn from the market. The price of continental bleach has been the same as the English, and the agents have followed the reduction of the Alkali Union's price. Another feature in the situation which is assigned by some as the cause for the reduction, is the large supply in the possession of manufacturers, it being believed they have taken this means to reduce their surplus at a season when it would prove expensive to carry it by reason of deterioration of quality during the voyage.

Fire at a New York Druggist's.

Our New York correspondent telegraphs that the business premises of the firm of Fairchild Brothers & Foster, of New York, wholesale druggists and pepsine-manufacturers, were burned down yesterday. The damage, amounting to \$30,000, is covered by insurance.

AJOWAN-SEED.—A parcel of sixty bags, imported from Bombay, was bought in at 1s. per lb.

ALOES.—*Cape aloes*, the only variety offered in quantity today, is very steady, 51 cases being readily taken at 22s. to 22s. 6d. per cwt. for good to fine bright hard, and 17s. to 18s. per cwt. for drossy and softish quality. Of *Curaçao aloes* only 19 boxes of a very dark colour were offered, and sold at 18s. per cwt.

AMBERGRIS.—In moderate request. About 24 oz. of dark and grey mixed pieces of fair aroma sold at 75s. per oz.

ANNATTO.—Fourpence per lb. is the price required for good seed from Coconada, but only 2*d.* per lb. was bid. For good West Indian seed 2½*d.* to 2¾*d.* per lb. is the price.

ASAFETIDA.—At auction to-day 155 cases were offered, but only one-third of this supply sold:—Good soft partly blocky, pinky mixed, mostly dark, realising 70*s.* to 80*s.*, common dark 17*s.* 6*d.* to 23*s.*, and a lot of 5 cases of low grade gum, returned from the States, 14*s.* per cwt., subject to approval.

BALSAM COPAIBA.—A parcel of four casks fair *Maranham* is quoted at 1*s.* 7*d.* per lb.

BENZOIN.—A new parcel of 17 cases blocky *Siam* benzoin in small grain, of bright colour, was bought in at 10*l.* per cwt. A few lots sold at 6*l.* 15*s.* per cwt. for small to medium almondy block and 5*l.* 5*s.* per cwt. (without reserve) for bright small clean blocky grain. *Sumatra* gum of good quality brought very high prices, 48 cases (out of 127 which were offered) realising 8*l.* 10*s.* to 8*l.* 12*s.* 6*d.* for good bright almondy seconds, slightly false packed, and 7*l.* 5*s.* to 7*l.* 10*s.* for a rather darker lot. Fair seconds, false packed sides, sold at 6*l.* 17*s.* 6*d.* per cwt. Fair *Penang*, glassy centres, dull sides, realised 97*s.* 6*d.* per cwt.

CALUMBA.—A parcel of 42 bags ordinary dark root from Bombay sold at 9*s.* 6*d.* per lb. One or two other lots, though offered without reserve, found no takers.

CAMPHOR (CRUDE).—The market still continues to rise steadily, though not too rapidly. On the spot it is difficult to obtain quotations for either *Japanese* or *Chinese*, although we hear that 105*s.* per cwt. has been accepted for the former. For shipment 90*s.* per cwt., c.i.f., has been paid for 200 piculs of *Chinese* camphor, August-September shipment.

CAMPHOR (REFINED).—On Monday last the English refiners raised their quotations 1½*d.* per lb., the present prices being as follows:—Flowers, bells, or ¼, ½, and 1 oz. tablets, 1*s.* 5*d.* per lb.; half-ton lots, 1*s.* 4½*d.* per lb. The German makers have followed suit by increasing their prices 1½*d.* per lb., their bells, in half-ton lots, being now priced at 1*s.* 4½*d.* per lb. At to-day's auctions a consignment of 25 cases *Japanese* refined camphor was bought in. For 1-oz. tablets 1*s.* 4*d.* per lb. was refused, 1*s.* 4½*d.* per lb. being the price, and for ½-oz. tablets a bid of 1*s.* 4½*d.* per lb. was rejected.

CANNABIS INDICA.—For 25 robbins fair greenish tops 3½*d.* per lb. is required.

CANTHARIDES.—It is said that a considerable quantity of *Russian* cantharides has been burned at a warehouse fire in Hamburg. For a 30-lb. lot of fair quality 2*s.* 10*d.* per lb. was refused to-day, 3*s.* per lb. being the asking price.

CARAWAY.—New crop *Dutch* seed is offering at 25*s.* per lb f.o.b. and will, from all appearances, be still lower shortly.

CASCABILLA.—Out of a parcel of 8 bags, 3 sold to-day at 28*s.* per cwt. The quality was small to bold silvery, but very stringy.

CASSIA FISTULA.—Ten bags fair ordinary, somewhat wormy, *Java* pods sold at 22*s.* per cwt.

CHAMOMILES.—The new Belgian flowers are offering cheaply:—at 55*s.* to 60*s.* per cwt. for good to very fine quality. The crop is said to be a very good one.

CINCHONA.—The only lot sold to-day was a 150-lb. case of damaged South American red bark in broken quill, which realised 5*s.* 9*d.* per lb.

COCA-LEAVES.—The price asked to-day for 4 bales good green Truxillo is 10*d.* per lb.

COLOCYNTH.—For good pale *Turkish* apple 1*s.* 5*d.* per lb. has been refused, 1*s.* 6*d.* per lb. being now the price.

CUBEBS.—Sales are difficult to effect. For a parcel of 9 cases fair grey berries from Bombay, bought in at 60*s.* per cwt., an offer of 45*s.* was refused, and about 100 bags from Singapore, fair brown sifted, were bought in at 50*s.* per cwt.

CUMIN-SEED.—Forty-two bags, Maltese seed were bought in to-day at 38*s.* per cwt.

CUSCUS.—A parcel of 200 bales, offered at auction to-day, was bought in at 12*s.* per cwt. A bid of 10*s.* would, perhaps, be accepted.

CUTTLE-FISH.—Fourteen cases fair pale but broken bone, from Bombay, sold cheaply to-day at 1¾*d.* per lb.

DRAGON'S-BLOOD.—The only parcel disposed of at to-day's auctions was one of 3 cases seedy block, of fair colour, which realised from 5*l.* 10*s.* to 5*l.* 12*s.* 6*d.* per cwt.

ELEMI.—This drug has been rather scarce lately. A 42-case parcel of fair quality, slightly dirty, mixed, was, however, shown at to-day's auctions. It was bought in at 42*s.* per cwt.

GALANGAL.—A twenty-five bag lot from Bombay sold at 17*s.* 6*d.* per cwt. Another parcel, of 15 bales very small root, was bought in at 15*s.* per cwt., in spite of the auctioneer's suggestion that, like other Chinese drugs, it was "sure to rise."

GAMBOGE.—The demand remains good, and of the 32 packages offered to-day, 29 sold at 9*l.* 5*s.*, for fair, slightly blocky pipe, of orange fracture; 8*l.* 15*s.* for broken, partly drossy pipe; and from 8*l.* 2*s.* 6*d.* to 8*l.* 12*s.* 6*d.* for dull coated *Saigon* pipe and pickings.

HONEY.—*Jamaica* honey sells well at the present low rates, about 70 packages more or less dirty liquid brown honey selling at 21*s.* to 24*s.* 6*d.* per cwt. A parcel of 100 cases fine *New Zealand* honey realised 45*s.* per cwt.

IPECACUANHA.—*Brazilian* root is from 2*d.* to 3*d.* per lb. lower; 84 bales were offered at auction, and 44 of these sold at the following prices:—Sound, fine, bright stout to thin, wiry and dull 4*s.* down to 3*s.* 1*d.*; good picked, but slightly damaged, 4*s.* 2*d.*; good stout to thin damaged from 3*s.* 9*d.* down to 3*s.* 3*d.* per lb. Of *Colombian* 17 bags were offered and bought in.

JALAP.—A few bales ordinary damaged root realised 8½*d.* per lb. to-day. Light *Tampico* root is held for 8*d.* per lb.

MENTHOL.—Steady, but unchanged. The price is still 16*s.* 6*d.* to 17*s.* per lb. on the spot.

MUSK.—Several parcels were offered to-day, but no sales were made. The market is quiet and nominally unchanged.

MYRRH.—Steady, at 6*l.* per cwt. for fair, partly small, native picked, and from 53*s.* to 57*s.* 6*d.* per cwt. for medium to bold red chips.

NUX VOMICA.—A parcel of 117 bags bold pickings from Calicut realised 4*s.* 3*d.* per lb.

OIL (CASTOR).—A parcel of 62 cases good pale Calcutta oil (firsts) realised 2½*d.* per lb. by sale "without reserve," and another parcel of 100 cases was subsequently disposed of at from 2¾*d.* to 2½*d.* per lb. "This," said the broker, "is the lowest figure ever touched by castor oil."

OIL (COD-LIVER).—The demand has been rather better this week, but prices show no change. Good new non-congealing Lofoden oil, 95*s.*; "summer" oil, 85*s.* per barrel.

OILS (ESSENTIAL).—*Oil of caraway* has been reduced, in sympathy with the decline in the price of the seeds, 6*s.* 6*d.* per lb. being now quoted for the best English. *Star-anise* oil has advanced to 7*s.* per lb., which has been paid on the spot. For shipment (October-November) the quotation is still 5*s.* 9½*d.* per lb., c.i.f. terms. At auction 7 cases were bought in at 7*s.* 6*d.* per lb. Of *Cassia* oil 17 cases were shown, but the greater part of this was reported to have been sold privately before the auctions. The rest was bought in at 3*s.* 4*d.* per lb. Sixty-four cases *Japanese Camphor* oil were bought in at 45*s.* per cwt. Only 21*s.* per cwt. was bid. Five cases 40-per-cent. *Japanese* peppermint oil were bought in at 11*s.* 6*d.* per lb.

OPIUM.—The London market remains quiet, so far as *Turkish* opium is concerned, but a good deal of business has been done in *Persian* at lower prices, ranging up to 10*s.* per lb. for good quality. Our Smyrna correspondent writes under date of July 21:—We have had a very quiet market this week, the only sales effected being 5 cases of new current tale quale and 1 case of very fine Yerli at a price equivalent to 8*s.* 8*d.* per lb., f.o.b., for the new current and 8*s.* 6*d.* for the Yerli; this shows a reduction of 3*d.* per lb. to last week's quotations. We are inclined to believe that a still further reduction in values will take place, as the crop now is truly estimated to yield about 6,000 cases, and if the Americans

keep a little longer yet out of the market a fall is inevitable. The arrivals to date amount to 400 cases, against 92 at the same time last year.

ORRIS—A cask of fair, palish, Italian chips sold, without reserve, for 51s. per owt.

OTTO OF ROSE.—We hear the following from Bulgaria, dated July 27:—For the last two weeks nothing of special importance has transpired here. All is at a standstill. The former firmness of the market is gradually weakening, and the producers, in spite the intrigues and extravagant hopes of all holders of old stock, are daily becoming more reasonable and less pretentious in their demands. No orders, not even inquiries of any consequence, have been received from abroad. Evidently the consumers do not intend to be "bull-dozed" by the owners of old stock into paying the old prices for any new supply they may require. The communication made by a Constantinople and Kazanlik dealer, in your issue of July 14, that on account of the last three poor crops, and the lightness of stock in all first hands, the old prices are sure to be sustained, only gives out the fact that there are exporters laden with old stock, which they are most anxious to dispose of. That is why they minimise the last three crops and advise their confiding friends to place confidential orders before the fixing of the local price. It is openly spoken in Kazanlik that the exporting houses, who were chiefly responsible for the exorbitant prices of last year, have between themselves old stock to the amount of 9,000 oz. With the exception of these two parties everybody works for lower prices. Will these two parties, by some *coup de main* similar to that of last year, effect a similar rise in the price again? I doubt it. Everything here indicates that the new prices may be at least 10 per cent. lower.

QUININE.—The shilling limit has been reached this week for the first time since the early part of the year, when 1,000 oz. sold at that price. On Monday and Tuesday about 19,000 oz. second-hand German bulk sold at 1s. per oz., and although the market has become a little quieter since then, and there are to-day sellers at the figure, it would not be possible to buy much at the price. The deliveries from the London public warehouses in July were 71,000 oz. The market position is considered very strong, and it is thought that the manufacturers are contemplating an advance in price.

RHUBARB.—Of 93 cases offered to-day 38 sold at steady prices generally, and at some slight improvement for flat Canton variety. The following figures were paid:—*Shensi*, small to medium pale coat, half-fair, half-grey fracture, 1s. 1d. to 1s. 3d.; ditto flat, 1s. per lb. *Canton*, bold flat, good coat, even pinky fracture, 1s. 4d.; ditto round, partly dull fracture, 1s. 3d.; medium flat, 1s. 1d. to 1s. 2d.; small to medium round, rather dull fracture, 10½d.; rough spongy pickings, good coat, 9d. per lb. *High-dried*: Flat, small to medium, fair coat, slightly wormy, three-quarter pinky, quarter dark fracture, 10d.; medium to bold fair rough coat, three-quarter pinky, quarter grey fracture, round, 6d. per lb.

SARSAPARILLA.—Grey *Jamaica* root sold to-day at 1s. 3d. for sound; and 1s. 1d. to 1s. 2d. per lb. for damaged; damaged *Lima Jamaica* at 10d., and dull pale damaged *native Jamaica* at 6½d. per lb.

TEA.—The *Indian* and *Ceylon* markets are very firm, and Indian terminals are quoted 7.5d. to 7.6d. for "spot." Monday's sale contained a better assortment of N.S. tea, including some really fine Assams, and while common tea was very steady, good to fine tea in many cases showed an advance. Tuesday's very heavy Ceylon sale went off briskly, though hardly at an advance on the prices reached at the end of last week. Here and there a poor liquoring rough Souchong sold at 5d., but any Pekoe Souchongs with fair leaf and liquor realised 5½d., and but little Pekoc sold under 6d. Finer sorts were in good demand, but useful Pekoes were to be bought from 6½d. to 7½d. The chief feature of the Congou market is the continued demand for good Kintucks and Keemuns at advancing prices. Not so very many years ago the war in the East would have sent the market into a state of wild excitement; but nowadays it seems impossible to get up a spurt in China tea.

WAX (JAPAN).—Slightly dearer; 32s. per lb. is said to have been paid for good pale squares on the spot.

WOOD OIL.—Twenty drums of fair quality, slightly cloudy, imported *via* Hamburg, sold cheaply to-day at 2½d. per lb.

Australasian News.

THE following notes are based upon information contained in the *Chemist and Druggist of Australasia* for May 1:—

REMOVAL AND FIRE.—While Kempthorne, Prosser & Co.'s Auckland business was being removed into new premises in Wyndham Street, a fire broke out in the basement where the acids were stored. Fortunately, it was discovered at an early stage. The fire-brigade was quickly on the spot, and in a short while had flooded the cellars with water. Several of the men were severely injured by the dense fumes arising from the acids.

PHARMACEUTICAL OFFICE-BEARERS IN N.S.W.—A special meeting of the Pharmaceutical Council of N. S. Wales, for the election of officers for the ensuing year, was held at Sydney on May 1. Mr. Brothwood, who has held the presidential chair for two years, declined re-election, and Mr. Bellemey was unanimously chosen to succeed him. The principal work awaiting the new President is the passage through Parliament of a new Pharmacy Bill, for which his predecessor has striven in vain for two years. Mr. Butcher was elected Vice-President, and Mr. W. G. Jones Treasurer.

THE BRITISH MINOR DIPLOMA IN N.S. WALES—A motion is to come on for discussion by the N.S. Wales Pharmacy Board very shortly to test the validity of admitting to registration the owners of Minor certificates of the Pharmaceutical Society of Great Britain. A great many have already been admitted on the Minor certificate, but the eleventh section of the N.S. Wales Poisons Act says distinctly that only a "pharmaceutical chemist of Great Britain" shall be admitted to registration. The discussion is looked forward to with much interest.

AMERICAN COMPETITION WITH THE BRITISH DRUG-TRADE.—Up to the year 1892 there was a very steady increase of imports of American drugs and apothecaries' ware into N.S. Wales, and it looked as if a big hole was going to be made in the trade of the United Kingdom, but suddenly the trade in these articles fell off enormously in 1893, as the following figures show:—Imported, 1892—drugs, 21,846l.; 1893—drugs, 9,551l.; or a difference of 12,295l. A rather singular feature of the Australian drug-trade with the United States is that alkalies and chemicals have increased very largely. For instance, in 1892, from the United States chemical products to the value of 919l. were imported, and these increased to 2,280l. in 1893. In alkalies there was a solid increase of 2,926l. Even taking these increases into account, there is still a deficiency for 1893 of 8,000l.

SALE OF OPIUM IN QUEENSLAND.—Some of the Queensland Ministers have been on tour through the North of the Colony, and have had to listen to many deputations. Among those who interviewed the Hon. T. J. Byrnes, the Attorney-General, were the Chinese merchants of Cairns, who pointed out that, in regard to the sale of opium, the Poisons Act was found to work against them very prejudicially, and, if not altered, would seriously interfere with the revenue. All they desired was to be allowed to sell opium by retail to their own countrymen. They disclaimed any desire to sell to Europeans or Kanakas. In spite of the Chinese statements it is a fact, however, that until quite recently opium was extensively used by the blacks in Queensland, and that it was obtained from the Chinese. The kind used by the blacks was so-called "charcoal opium," which had already been smoked. As this was sold at a price varying from 25s. to 30s. per lb., and the vendors of the original opium had in all probability made a good profit on the first transaction, it can be well understood that the strict maintenance of the Poisons Act would cause a shrinkage not only in the public revenue, but particularly in that of the Chinese merchants. The Minister memorialised promised to lay the matter before his colleagues on his return to Brisbane, but no decision has yet been arrived at.

FOOD-ADULTERATION.

THE Select Committee of the House of Commons met again on July 20, Sir Walter Foster presiding.

Professor Long, Member of the Council and of the Margarine Committee of the Central Chamber of Agriculture, gave evidence. He advocated the absolute prohibition of colouring-matter in margarine, and also a Government body which might be under the Board of Agriculture to deal with dairy products. To such a body the public should be able to send samples for analysis at fixed fees—say half-a-crown for milk. He also suggested that packages containing margarine should be required to be labelled margarine in black letters not less than an inch-and-a-half by an inch. The administration of the Adulteration Acts should be compulsory on local authorities and not merely permissive. How that was to be enforced on local authorities it was hardly his province to say. Repeated convictions of a man for adulterating should be dealt with not merely by fines but by imprisonment—say after the third conviction. Margarine mixed with butter might be detected to a slight extent by margarine melting more quickly on the tongue. Margarine cost 6d. a pound, and it was possible to mix 25 per cent. of it with butter costing 112s. per cwt., and then sell the mixture at 100s. per cwt. There had been cases of analytical experts pronouncing butters to be pure which the dealers subsequently admitted were mixtures. In some mixtures made by witness a chemist detected the presence of margarine down to 12½ per cent. In regard to milk he suggested a standard for fat, but not for other solids in it.

The Committee met again on July 25, Sir Walter Foster presiding.

Mr. Christopher Middleton, a Yorkshire agriculturist, first gave evidence. He recommended the prohibition of colouring-matter in margarine. After giving the results of a number of tests to show that the milk of the same cows varied on different days according to changes of feeding and other circumstances, he said he was in favour of a milk standard, as high as possible consistent with safety, and subject to the "appeal to the cow." With that protection he would suggest 3 per cent. for fat and 8.50 for other solids. Without such an appeal he suggested 2.75 of fat and 8 per cent. of solids. He also suggested the appointment of travelling inspectors to see that the local people were doing their work properly. He considered that separated milk should be allowed to be sold, but only for what it really is. The practice of mixing it with unseparated milk now prevailed to a large extent. Where a poor man kept only one or two cows, and did not give them such things as oil-cake, no doubt milk of a poor quality would result.

The President of the Board of Agriculture suggested that such milk might be usefully employed to mix with better milk. Witness agreed.

By Mr. Colman: In his part of Yorkshire, and the north of England generally, it was not the practice to colour milk with annatto in the manner that prevailed in London. He had reason to believe that there was a practice of mixing margarine with Normandy butter. He advocated the inspection of margarine-factories, one object being to see that only pure fat was used. In reply to other questions, witness said he thought it would be more satisfactory to farmers if dealing with dairy products were in the hands of the Board of Agriculture rather than in those of the Local Government Board. He was in favour of the absolute prohibition of mixing margarine with butter, and also the selling of both margarine and butter at the same counter in a shop. He made these recommendations from the point of view that they would benefit the English producer of butter.

Mr. Whiteley: Are you aware that four-fifths of the butter consumed in England comes from abroad?

Witness could not give the exact figures.

Mr. Whiteley suggested that his proposals would benefit the foreigner four times as much as the Englishman.

Witness continued that he would require hotel and restaurant keepers to make it clear to their customers, by label or otherwise, when they were being supplied with margarine after asking for butter.

Mr. Bannister, of the Somerset House Laboratory was then recalled. In reply to Mr. Whiteley he said that speur ginger was used as an adulterant of other ginger. Whether that amounted to a fraud on the public depended on the price asked for the mixture. There had been no samples of beeswax referred to Somerset House. Some difficulty arose in deciding whether that commodity was a food or drug—or neither. (Laughter.) Witness was examined at great length as to the proportions of water it was desirable to allow in butter, Mr. Kilbride directing questions to show that the fixing of a limit would prejudice a large number of purchasers.

Mr. Kilbride: What evidence have you that the public only desire to have 16 per cent. of water in butter? (Laughter.)

Witness replied that the evidence was that one ought to get as much value as one could.

Mr. Kilbride remarked that it seemed to be rather a matter to be settled by public taste than by an arbitrary standard.

The Committee resumed on Friday, July 27.

Professor Long was re-called. He recommended that an effective branding of foreign cheese should be enforced. Instances had occurred of mere printed brands on American cheese being rubbed off in England. Cheese made from margarine existed to a large extent in England, and the public ought to be made aware of that when it was offered to them, in the same way as margarine is required to be named. The mixing of separated milk with full milk occurred to a large extent, and was difficult, if not impossible, of detection. There were great objections to the existing arrangements for analysis at Somerset House. The chemists there had too much to do, and covered too wide a scope. They were also too lenient, and would accept milk containing 18 or 19 per cent. of water, where a local analyst might refuse to pass 15 per cent.

On August 1 Mr. Channing presided until the arrival of Sir Walter Foster, and there was but a small attendance of members.

Mr. Samuel Farmer, a Wiltshire dairy-farmer, said that he supplied 1,500 gallons of milk daily to the Aylesbury Dairy Company at Bayswater, and his contract specified that the milk should contain not less than 3.25 per cent. of fatty solids and 8.75 of other solids. He had no difficulty in keeping up to that standard, and as a matter of fact the lowest he had produced had been with 3.56 of fatty solids. He was in favour of fixing a standard, but it should not be less than 3 per cent., or otherwise it would be offering a premium to adulteration. Large quantities of separated milk were sent to London, especially in the winter and at times when milk was scarce, in order to be mixed with the fresh milk, and he would endeavour to prevent this by making it penal, and by offering rewards to men to inform upon employers who adopted that practice. Adulteration at times was so remunerative to the milkman that fines were no deterrent, and he thought when an offence was clearly proved it should be met by imprisonment, but he would admit of an appeal to the Committee. As to margarine, the whole object of colouring it was to perpetrate a fraud upon the consumer, and he would make the colouring of it illegal.

Mr. Whiteley, a member of the Committee, pointed out that margarine in its natural state was of the colour of cream, and that the Lancashire people preferred cream-coloured butter, so that the witness's proposal would not effect its object.

Mr. T. Carington Smith, Chairman of the Margarine Committee of the Central Chamber of Agriculture, also gave evidence, urging that there should be uniformity of inspection at the ports and administration throughout the country, and to ensure this he considered that the Adulteration Acts should be administered by the central authority rather than by local authorities. He also would make it illegal to colour margarine so as to resemble butter, and considered that the wholesale dealer should be prosecuted as well as the retailer.

The Committee then adjourned.

Personalities.

MR. DAVID GILMOUR, pharmaceutical chemist, Dunfermline, has been elected a member of the Town Council.

MR. CHARLES E. CASSAL, F.I.C., Public Analyst for Kensington and St. George's Hanover Square, has been elected Honorary President of the VIIIth (Food) Section of the forthcoming International Congress of Hygiene and Demography at Budapest.

THE degree of Doctor of Philosophy has been conferred by the University of Gottingen upon Mr. J. T. Conroy, B.Sc., son of Mr. M. Conroy, F.C.S. Mr. J. T. Conroy has been making a special study of the turpentine compounds under Professor Wallach at Gottingen.

IT is not often that the Pharmaceutical Examiners have before them a candidate holding two such public positions as Town Councillor and member of the School Board. Such was their experience last week when Councillor S. Richardson, of Stockton, managed to satisfy them at practically his first attempt.

CANON WHITESIDE, who has recently been nominated Roman Catholic Bishop of Liverpool, in succession to the late Bishop O'Reilly, is the son of a chemist, and was born at Lancaster in 1856. He received his early education at St. Edward's College, Liverpool, and afterwards proceeded to Ushaw College, near Durham. Canon Whiteside is a profound scholar, and, in addition to his other degrees, is a graduate of the University of London.

Marriage.

CENTER-SMITH.—At Edinburgh on July 25, by the Rev A. Wallace Williamson, Joseph A. Center, chemist and druggist, to Laura, eldest daughter of David Smith, 57 St. Stephen's Street, Edinburgh.

Deaths.

ASKEW.—On July 10, John Askew, chemist and druggist, of Carnforth. Aged 61.

BAXTER.—On June 16, George Munnerly Baxter, pharmaceutical chemist, Sydney, Australia.

CLARKE.—On July 26, Mr. William Richard Clarke, pharmaceutical chemist, 3 Sheep Street, Northampton. Aged 63 years.

COLLINS.—On July 7, Robert Enos Collins, chemist and druggist, of Boston. Aged 39.

CUFF.—On July 4, R. Cade Cuff, chemist and druggist, Bristol.

DAVIS.—On May 4, at Scottsdale, Tasmania (while on a visit), Mary, relict of the late George Davis, merchant, Melbourne, and formerly of Glasgow, and mother of George Davis, chemist, of Launceston, Tasmania. Aged 56.

RICHARDSON.—At 36 Cambridge Avenue, Pilrig, Edinburgh, on July 18, Mr. William Richardson, of Anderson & Co., manufacturing chemists, Murano Place. Deceased was formerly laboratory manager to Messrs. Raimes, Clark & Co., Edinburgh, and previous to that had been with Corbyn & Co., and in a laboratory in New York. About five years ago he entered into partnership with Mr. Anderson, and quickly made a business in the manufacture of pharmaceutical preparations. Mr. Richardson was about 45 years of age.

VIAL.—At Perran Porth, Cornwall, on July 27, Henry Vial, for many years foreman of the Credito Medicinal Lozengeworks.

WRIGHT.—On July 25, Charles R. Alder Wright, D.Sc., F.R.S., for 23 years Lecturer on Chemistry at St. Mary's Hospital, Paddington.

New Companies and Company News.

THE *Pall Mall Gazette* states that there will be no interim dividend declaration this year on the shares of the United Alkali Company.

MESSRS. TIDMAN & SON, Bushell Street, E., have been converted into a limited liability company. The change is for family reasons only, and no subscriptions for shares are asked for from the public.

JEYES' SANITARY COMPOUNDS COMPANY (LIMITED).—The directors announce the declaration of an interim dividend, at the rate of 10 per cent. per annum, for the six months ended June 30, 1894.

AT the next general meeting the directors of Price's Patent Candle Company (Limited) will recommend a dividend for the half-year ended June 30, 1894, of 10s. per share, which will absorb 18,750l.

J. R. ROBERTS' STORES (LIMITED), which has lately been converted, with a share capital of 202,500l., for the purpose of carrying on business as a general stores, will, among other things, deal in drugs, wines, &c., at the Broadway, Stratford, London, E.

THE BRECHIN AGRICULTURAL AND TRADING COMPANY (registered in Scotland): to take over the business of manure manufacturers and oilcake merchants presently carried on by and under the name of the Brechin Agricultural and Trading Company, and to carry on business as manufacturers of manures and agricultural fertilisers of all kinds, also the business of seed-crushing and manufacturing of all manner of cakes and feeding-stuffs. The capital is 10,000l., divided into 500 preference shares of 10l. each, and 5,000 ordinary shares of 1l. each. The first subscribers are:—Win. Valentine, bank agent, Brechin, 100 ordinary shares; Alex. Pirie, hotel-keeper, Brechin, 100 ordinary shares; Jas. Guthrie, bank agent, Brechin, 100 ordinary shares; John Shiell, solicitor, Brechin, 100 ordinary shares; P. Hodgton, chemist, Brechin, 100 ordinary shares; John Lamb, manufacturer, Brechin, 100 ordinary shares; David Low, waste merchant, Brechin, 100 ordinary shares. Registered office, Park Road, Brechin.

Gazette.

PARTNERSHIPS DISSOLVED.

Bailes, R., and Hallsworth, S., Leeds, manufacturing chemists, under the style of Bailes & Hallsworth.

Smith, B. W., and Roebuck, B., Lower Hopton, Mirfield, aerated and mineral water manufacturers, under the style of Smith & Roebuck.

Trouncer, J. H., Gibbes, C. C., and Owst, A. H., Surbiton, physicians, surgeons, general medical practitioners, and apothecaries, under the style of Trouncer, Gibbes & Owst.

THE BANKRUPTCY ACTS, 1883 AND 1890.

ADJUDICATIONS.

Mercer, Frederic, Kingston-upon-Hull, late Abridge, Essex, and Ashford, Kent, physician and accoucheur.

Saunders, Henry Banyard, Liverpool, director of a public company, late a mineral-water manufacturer.

ORDERS MADE ON APPLICATION FOR DISCHARGE.

George, Frederick, Chipping Norton, doctor of medicine and surgeon—discharge granted conditionally.

Lathbury, Charles John, South Dunstable, Bedfordshire, late Barton-under-Needwood, Staffordshire, medical practitioner—bankrupt discharged subject to his consenting to judgment being entered for 400l., being part of balance of debts provable in the bankruptcy.

The following notice is taken from the *Edinburgh Gazette*, of July 31:—"William Henry Shepherd, partner of the firm of Souter & Shepherd, chemists, College Street, Aberdeen, trustee on the sequestrated estate of Robert Black, lately chemist and druggist, at 39 Justice Street, Aberdeen, and thereafter at Egham, Surrey, England, hereby intimates that the commissioners have postponed a dividend until the recurrence of another statutory period. (Signed) John Murray, Advocate, Aberdeen, Law Agent for the Trustee, Aberdeen, July 30, 1894."



Memoranda for Correspondents.

Letters for publication correspondents are requested to express their views as concisely as possible.

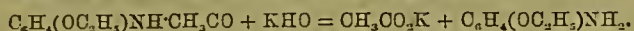
Correspondents should write on one side of the paper only, and devote a separate piece of paper to each subject of inquiry.

The name and address of the writer should accompany all communications with, if desired, a distinctive nom-de-plume.

The Purity of Phenacetin.

SIR,—In your issue of July 28, in an article on "The Purity of Phenacetin," reference is made to the comparative value of various tests for this drug. Although adulterated and impure phenacetin does occur on the market, the statement that the isonitrile test of the Pharmacopœia is rarely answered by any sample is, however, misleading so far as it implies that all samples yielding an unpleasant odour when "boiled with solution of potash and a drop or two of chloroform" are impure. Even phenacetin concerning the purity of which there can be no doubt will afford this reaction if the boiling is too long continued, as the following considerations show.

Phenacetin is ethoxy-acetanilide, and on boiling with strong alkalis the acetyl (CH_3CO) group is split off, as with acetanilide, but more slowly, and para-amidophenetol or phenetidin formed, according to the equation—



Phenetidin answers in many particulars to the tests for acetanilide, or rather for aniline liberated from acetanilide by boiling with alkalis, and amongst these yields the isonitrile and indophenol reactions. Consequently, although the decomposition of phenacetin by alkalis and formation of the isonitrile odour when boiled with chloroform progresses more slowly than with acetanilide, a reaction takes place in the same sense, and the Pharmacopœia test is, therefore, not a reliable one for detecting small admixtures of acetanilide.

Perhaps the best chemical test for the presence of acetanilide is to dissolve 0.1 gramme phenacetin in 10 c.c. hot water, cool well, filter, and add a little bromine-water. Acetanilide is much more soluble than phenacetin, and, if present, a precipitate of bromacetanilide is formed in the filtrate. If allowed to stand ten minutes, an admixture of 5 per cent. can be detected with certainty.

Schmidt's test, which is based upon the ready formation of red compounds from unconverted (*i.e.*, non-acetylated) phenetidin by the action of oxidising agents, is excellent in itself, but is not a test for acetanilide, and is to some extent superfluous, as the presence of any quantity of phenetidin would make itself apparent from the reddening of the sample by keeping. In our experience, the best samples of phenacetin answer Reuter's chloral-hydrate test, and do not produce a violet coloration. Yours truly,

H. HELBING.

63 Queen Victoria Street, E.C.,
July 30.

F. W. PASSMORE.

Degrees for Pharmacists.

SIR,—I think the time has come when those who hold the Major qualification of the Pharmaceutical Society of Great Britain, as well as that of Ireland, should agitate for a degree. We have doctors of law, science, divinity, dental surgery, &c., while the pharmaceutical chemist, whose attainments, I consider, are not to be sniffed at, is left in the cold. If some of the existing licensing bodies could grant the title of doctor of pharmacy, or obtain powers to do so, I have no doubt it would be availed of by a number of chemists and prove a source of profit to all concerned. Perhaps the British and Irish Societies, as far as the degree is concerned, could work conjointly. Yours, &c.,

SEIDLITZ POWDER. (98/4)

Tincture of Iodine.

SIR,—The letter of "C. & D." in last week's issue seems to me to prove one fact only—*viz.*, that he is blessed with a very tender skin. He admits that tincture of iodine, even of B.P. strength (1 in 40), caused desquamation, and that a 1-in-20 tincture produced blisters. This, he thinks, sufficiently proves that a 1-in-16 tincture is out of the question. That his experience is unique is testified by the following facts:—(1) Tinctures of strengths 1 in 40 and 1 in 16 were painted in rings round my arm: 1 in 40 made a light-brown stain, which disappeared in three days, without affecting the skin in the least; 1 in 16 made a much darker stain, and in three days the skin peeled off to a slight extent. These results were confirmed by subsequent experiments. (2) B.P. tincture of iodine is seldom prescribed by medical men without admixture with liniment to strengthen it. (3) E.P. tincture (strength 1 in 16) is frequently prescribed, B.P. being considered of no use. (4) Experience abroad points to the fact that a tincture of about 1 in 16 is required, the various Pharmacopœias ranging in strength from 1 in 13 to 1 in 17. The Pharmacopœia last published—the U.S.—gives 1 in 14½. These strengths are by volume, and should convince "C. & D." that foreign as well as home experience is against him. Although not a doctor, I would advise "C. & D." to dilute his tincture with glycerine the next time he uses it. However, I trust there may be no further occasion. I not only urge the increase of the strength of the tincture to 1 in 16, but also the deletion of the liniment and the vapour from the B.P. An addition of 1 in 16 of potassium iodide forms a tincture which could be used equally well for external and internal use, and also as an inhalation, being miscible with water in all proportions without decomposing. Yours faithfully,

CLAUDE F. HENRY.

1 Brandon Terrace, Edinburgh,
July 28.

A Whooping Experience.

SIR,—The amusing article under the above heading reminds me of an idea that might prove useful to those who desire to erect an "amateur gasworks" for the cure of whooping-cough. I was informed lately that the hydrocarbon disinfecting tablet, variously sold as naphthalene, camphylene, &c., is largely used for this purpose in certain parts of Lancashire. It is administered by placing the tablet on a very hot shovel, and allowing the patient to inhale the fumes given off. Of course, it is an infallible cure. Yours, &c.,

Liverpool, July 31.

ROHANI. (100/36.)

Cure for Hiccough.

SIR,—Having read in last week's issue a paper on hiccough, I thought the following remedy, which you did not quote, and which I have always found to be infallible, would be interesting.

Immediately the attack commences, the thumb of the right hand is to be placed in the palm of the left, and the middle finger of the right hand is to be directed on the outside of the left hand, so that it is just over the thumb.

Yours truly,

Bloomsbury, London, W.C.,
August 1.

X. Y. Z. (100/61.)

Veterinary-chemist Defence Fund.

Mr. M. C. Sumners, Heckington, Lincolnshire, will subscribe 1*l.* 1*s.* or 2*l.* 2*s.*, if need be.

MISCELLANEOUS INQUIRIES.

95/55. *G. S.*—Composition of Hand-Grenades for Extinguishing Fires.—Various substances are used—saturated solutions of sal ammoniac, ordinary washing-soda, alum, &c. A solution made by boiling sulphur and quicklime together has also been recommended.

93/5. *Agricola*.—Pill-coating with Salol.—We have seen no reference to its use for this purpose before, but presume it is intended to replace keratine in pills intended to pass into the intestines before being dissolved. Since receiving your query we have tried various methods of solution, and find spirit etheris B.P. the most useful solvent. If a saturated solution of salol in spirit of ether be made, and a sufficiency of French chalk be added to the consistency of a thin cream, a very useful coating is obtained, when pills are coated in a similar manner as when gelatine is used.

92/63. *A. Z.*—Reliable Hair-dyes.—Suitable formulæ will be found in DIARY, 1894, page 365. That given at the bottom of the page will answer your purpose if grey or white hair is to be dyed. According to the frequency with which it is used, a blonde, brown, or black will be obtained; but modify the formula by using 10 grains citric acid in place of the nitric acid, and add about $\frac{1}{2}$ oz. of glycerine. It is not possible to use a dye upon other than grey hair that will give you the three shades; in this case, for the blonde, peroxide of hydrogen in some form would require to be used.

88/33. *Delta*. For Promoting the Growth of the Hair, and containing peroxide of hydrogen:—

Liq. epispastic, B.P.	..	..	..	3ij.
Glycerini	..	..	..	3j.
Sol. hydrogen. peroxidi (20-per-cent.)	..	..	..	3j.
Aq. camph. ad	..	..	..	3xiij.

Mix the various ingredients together, adding the hydrogen peroxide last. About 4 drachms of toilet vinegar may be added to the above with benefit. Use as an ordinary dressing to the hair; the head to be washed occasionally with borax and water to remove any superfluous grease which may accumulate.

93/13. *W. B.*—To Induce the Blue Coloration in Cheese such as one finds in old Stilton, &c., your idea of adding a small quantity of any good ripe cheese is a good one, and likely to succeed. Let it be added to the curd immediately before wrapping in the cloth to put in the press, and, a day or so previous to taking the cheese out, run a fine, thin-bladed knife well into the centre of each cheese once or twice. Of course the cheese will have to be kept for a reasonable time to ripen before sending to the market. The only other method likely to succeed would be immediately on removing the cheese from the press to pierce a hole with an ordinary cheese-taster, and insert a small piece of the ripe cheese. The coloration is considered to be due to the presence of a mould and fermentation.

94/4. *P. & H.*—See reply to "Cobalt," last week.

94/45. *Sponges*.—To clean slimy sponges carefully press out all water, and sprinkle with powdered calcium chloride, allowing it to deliquesce on the sponge. Then wash well in water.

92/38. *Jean Blanc*.—To Remove Marking-ink Stains from Linen.—Solution of cyanide of potash being of no use, try a saturated solution of iodine in the cyanide solution, finishing off with a warm saturated solution of hyposulphite of soda. Should this fail, then try solution of oxalic acid, chlorinated lime or soda, and rinse well afterwards with ordinary washing soda, dissolved in water.

95/5. *Philadelphus*.—Squibb's Ext Ergotæ Liq.—This is, we believe, identical with the U.S.P. extract. The formula is:—

Ergot, in No. 60 powder	..	..	1,000 grammes
Acetic acid	..	..	20 c.c.
Dilute alcohol, 41-per-cent.	..	..	q.s. to make 1,000 c.c.

Moisten the powder with 300 c.c. of the alcohol, and pack in a percolator; then add more alcohol, and when the liquid begins to drop close the percolator and macerate for forty-eight hours; then percolate till exhausted. Reserve the first 850 c.c., and having added the acetic acid to the remainder, evaporate to a soft extract. Dissolve this in the reserved portion, and add dilute alcohol to 1,000 c.c.

96/1. *Fiat Lux*.—Your experience with duhoisine sulphate is unfortunate, but is not to be wondered at considering the very unsatisfactory nature of our knowledge as to what duhoisine really is. It is generally now understood to be identical with hyoscyamine, but Ladenburg stated that a commercial sample examined by him consisted of hyoscine (or scopolamine). Schmidt says that the alkaloid of *Duboisia myoporoides* is sometimes hyoscyamine and sometimes scopolamine. The sample dispensed was in all probability impure, and so gave rise to unpleasant symptoms. In a case like this, where difficulties may occur, the patient should always be warned of what may happen.

94/16. *Jacque*.—Collodion Iodi:—

Iodine	..	..	..	..	30 grs.
Collod. flexil.	..	..	..	..	3j.

Solve.

Apply with a brush at bedtime.

95/40. *Alpha*.—For Putting a Head upon Ginger-beer and Aerated Waters:—

				Oz.
Quillaia-bark, in coarse powder	..	..	..	4
Boiling water	..	..	..	15

Simmer gently for fifteen minutes; when almost cool add spt. vini rect. 5 oz.; macerate for a couple of days, strain, and filter.

An aqueous extract, evaporated to dryness, is also sold for the purpose. White of egg is also used.

96/2. *Fuchsin* comments favourably upon formulæ in DIARY, 1894, for Carboy Colours, but has experienced a difficulty with the fuchsin and acetic-acid one. The colour is all right, but after the carboys have been filled for some time it becomes choked up with a sort of fungoid growth, like a mildew, on top and sides, and, although filtered clear, it soon develops a further growth. Leave out the acetic acid from formula, and substitute $\frac{1}{2}$ oz. of spirit. meth., in which about 1 dr. of salicylic acid has been dissolved, using this as the solvent for the fuchsin. Another likely method would be to use chloroform-water to fill up the carboys with, or a trace of bichloride of mercury might be added. Or you might try the addition of a little hydrochloric acid in place of the acetic. We note our correspondent's remarks about the blue and green formulæ being too strong, and that half the quantities given to the gallon are more than sufficient.

Quercus.—To restore the colour of syrnp. violæ try the addition of a few drops of an alkaline solution of logwood containing a little alum. A solution of methyl violet might be used, but, if detected, would render you liable to a prosecution under the Food and Drugs Act.

93/56. *Fueta non Verba*.—The fourth item in your prescription is, as near as we can make out from your copy, *acorus calamus* 3j.

96/23. *Iodoform*.—The change in the colour of iodoform ointment on keeping is due to the liberation of iodine. It occurs most readily when the substance is exposed to light. See *C. & D.*, January 30, 1892, page 169.

93/64. *Bones*.—A good handbook on anatomy is Bellamy's "Student's Guide to Surgical Anatomy," published by J. & A. Churchill, 11 New Burlington Street, W., price 7s. 6d. Bone-setting is treated of in Hood's work on "Bone-setting (so-called)," which can be obtained of H. K. Lewis, 136 Gower Street, W.C., price 4s. 6d. Bone-setters are not specially affected by the Medical Acts. It is not illegal for an unqualified person to set a broken bone, though he could not recover any fee for doing so, and if anything went wrong the presumption would be that he had undertaken work for which he was not competent, and he might have to pay for his rashness.

CONDY'S FLUID CONTAINS NO PERMANGANATE OF POTASH.



CONDY'S FLUID
COLOURABLE
IMITATIONS.

Eleven Injunctions

With *damages* and *costs* have been obtained against Chemists selling a *solution of Permanganate of Potash in execution of orders for*

CONDY'S FLUID.

CONDY & MITCHELL, Ltd., 67 Turnmill St., E.C.

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"ORIGINAL"

**GRANULAR
EFFERVESCENT
PREPARATIONS.**



HIGHEST AWARDS—PARIS EXHIBITION, 1889; CHICAGO EXHIBITION, 1893.

Citrate of Magnesia.

1st Quality.

4½ lbs. or 7 lbs. 1/9 lb.
1 cwt. 1/8 "

2nd Quality.

This preparation furnishes the Chemist with a really first-rate article at a low price. We guarantee it to contain a large proportion of Citric Acid, that it is as carefully made as our best quality, and that it will keep as well.

In 4½ or 7 lbs. at 1/3 lb., less 10 %
Per cwt. in " at 1/- lb. net.
" 3 " " at -/11 lb. net.
Special line, 28 lbs.
(tin included) 32/- net.
6 oz. flat, plain label (capsuled),
per doz. 4/3; per gross 48/- "
½ lb. round do., doz. 4/9; " 53/- "
¼ lb. " " " 8/-; " 90/- "
1 lb. " " " 15/-; " 165/- "

SALINES.

The very greatest care is taken in the manufacture to ensure their keeping well. They have given complete satisfaction to our customers, as evidenced by our largely increasing sale.

Saline, powder or granular, in 4½ lbs. or 7 lbs., at 1/3 per lb., less 10 per cent.
Ditto, per cwt. at 1/- net.
Special line, 28 lbs.
(tin included) 32/- "
In 8-oz. Capsuled Bottles
(Wood's quinine tint),
labelled or plain, per
6 oz. 8/6 "
In 8-oz. ditto, per 6 doz. 8/- "
" " per gross 90/- "
" " per 3 gra. 84/- "
In 8-oz. " per dozen 7/- "
" " per gross 78/- "
" " per 3 gra. 72/- "

SEIDLITZ POWDERS.

These powders are accurately weighed, B.P. strength, made with Howard's Seidlitz and the finest English Acid, free from lead by B.P. test.

In one gross boxes.

Per box net.
50 gross in 50 boxes at 4/3
20 " 20 " " 4/6
10 " 10 " " 4/9
1 " 1 " " 5/-
In one dozen boxes (bronze blue),
unlabelled and unwrapped, at 6d.
per gross extra.
Labelled and wrapped, extra.
The same quantities in half-dozen
boxes, 6d. per gross extra.
For extra strong powders add 1/- a
gross to the above prices.

SELTZOGENE POWDERS.

Two pint, 12/6 per doz. bxs. net

Three " 14/6 " "

Five " 18/6 " "

Eight " 32/- " "

Packed in Envelopes in superior hinged bronze box.

Reduction in quantities of
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BRAND.

BICARBONATE OF SODA,

REFINED AND RECRYSTALLIZED.

PURE AND CHEAP.

ANALYSIS.

Bicarbonate of Soda	...	---	---	---	---	97.20
Mono Carbonate of Soda	...	---	---	---	---	1.90
Sulphate of Soda	...	---	---	---	---	trace
Chloride of Sodium	...	---	---	---	---	.035
Moisture	...	---	---	---	---	.82
Insoluble	...	---	---	---	---	nil

PURE ALKALI,

GUARANTEED 58 DEGREES.

EQUAL TO 98 PER CENT. OF CARBONATE OF SODA.

Most economical form of Soda for the use of Printers,
Bleachers, Dyers; Glass, Paper, and Soap Makers.

CONCENTRATED CRYSTAL SODA

(Sesqui-Carbonate).

By far the Purest and Cheapest form of Washing Soda.

Only 1 lb. of Concentrated Crystal Soda required to do the work of 2 lbs. of Washing Soda.

SODA CRYSTALS

OF THE FINEST QUALITY.

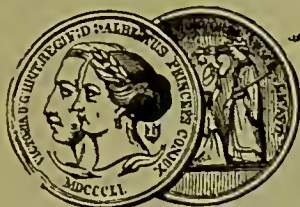
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QUININE, CINCHONA ALKALOIDS,

Acetates of Soda & Potash.
Acids, pure.
Æthers, pure & methylated.
Antimony preparations.
Benzoic Acid & Benzoates.
Bicarbonate of Potash.
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Spirit preparations.
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WORMWOOD AND MANY OTHERS.

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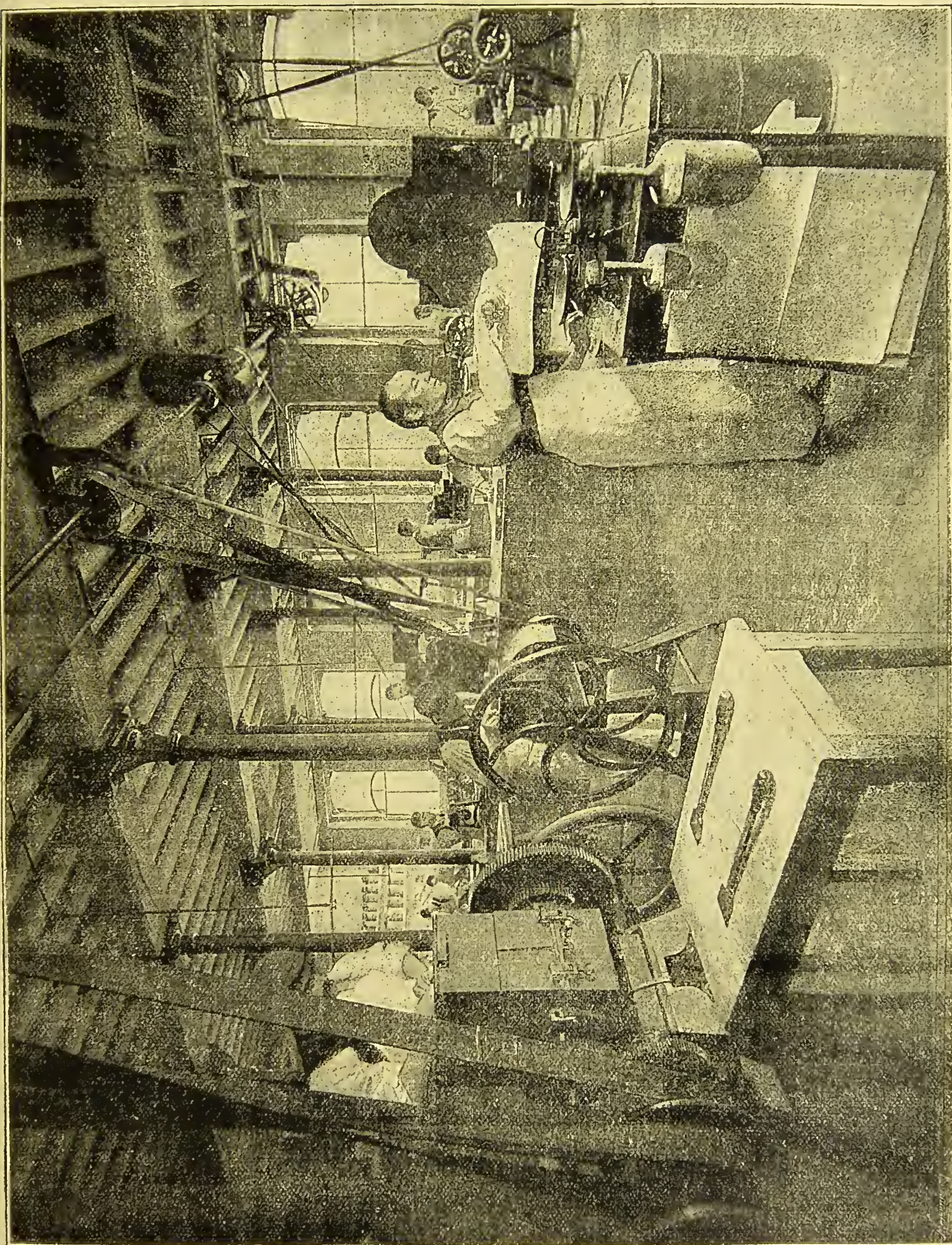
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London, E.C.

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ESTABD. 1793. INCORPD. 1891. CENTENY. 1893

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They are sold in such sized parcels, and at such prices, as enable the Retail Chemist to answer a prescription and make a prescription profit. Messrs. JOHN WYETH & BROTHER were the Pioneer Manufacturers in Pharmaceutical Chemistry, and they present the results of experience, intelligence, the most complete appliances, and a superintendence of the highest commercial integrity, in their list of elegant Pharmaceutical Preparations, among which especial attention is called to the following :—

Compressed Pills (or Powders), plain and sugar-coated; Soluble Compressed Hypodermic Discs; Compressed Ophthalmic Discs (John Wyeth & Brother were the first to manufacture these compressed drugs, they are the largest manufacturers of compressed drugs, and they supply any formula desired, in quantities for prescription purposes); Wyeth's Beef Juice, Wyeth's Wine of Tar, Wyeth's Glycerole Chloride of Iron, Wyeth's Elixir Digestive Ferments, Wyeth's Dialysed Iron, Wyeth's Digestive Ferments (Pepsin, Pancreatin, Amylopsin, &c.)—all of which are favourably known to the Medical Profession, and are valuable adjuncts to the successful Chemist's stock-in-trade.

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July 28, 1894.

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Soluble Pearl-Coated Pills.

SPECIMEN PRICES.

		In 10-Gross and 1-lb. Tins.				Per Gross.	Per lb.
Pil. Aloes et Ferri, P.B.	...	/6	4/-	Aperient (Mild)	...	/6	4/-
„ Coloc. et Hyos., P.B.	...	1/1	9/-	„ (Strong)	...	/6	4/-
„ Rhei Co., P.B.	...	/6	4/-	Antibilious	...	1/-	8/6

The "Colloid" Capsules.

SPECIMEN PRICES.

Bals. Copaibæ, m.x.	...	10/- per 1,000	Ol. Santal. Flav. Ang.	...	38/- per 1,000
Creasote, mi.	...	10/6 „ „	Pil. Bland., grs. v.	...	10/- „ „
Ol. Chaulmoogra, m.x.	...	20/- „ „	Quininæ Sulph., grs. iii.	...	18/- „ „

Effervescent Preparations.

SPECIMEN PRICES.

Citrate of Magnesia (A)...	...	1/6	130/-	Antipyrine, grs. v. to 3i.	...	6/- lb.
„ „ (B)...	...	1/-	75/-	Caffein Cit., „ „	...	4/6 „
„ „ (C)...	...	/10	70/-	Phenacetin „ „	...	8/- „
„ „ (D)...	...	/9	65/-	Sodii Sal. „ „	...	3/- „

"Bi-Conical" Horse Balls.

SPECIMEN PRICES.

Alterative	...	2/- Doz.	21/- Gross.	Physic, 4 drs.	...	2/- Doz.	21/- Gross.
Cough	...	2/- „	21/- „	„ 5 „	...	2/6 „	27/- „
Diuretic	...	1/9 „	18/- „	Tonic	...	2/- „	21/- „

"A I" Compressed Tablets.

SPECIMEN PRICES.

Antipyrine	...	54/- per lb.	Coc., Pot. Chl., and Borax	...	4/6 per lb.
Borax	...	1/9 „	Ipecac. c. Opio	...	7/- „
Cascara, grs. ii.	...	8/6 „	Potass. Chlor.	...	1/3 „

Also in 6d. and 1s. Screw-top Bottles, and in Bottles of 100 Tablets at Lowest Prices.

All Tinctures IN BOND. Concentrated Liquors. Sundries of every
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T. HOWARD LLOYD & CO.

Manufacturing and Export Chemists,

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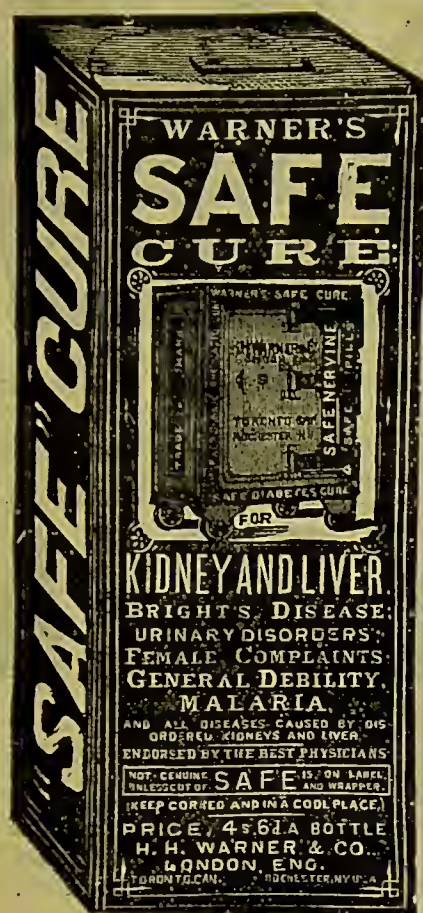
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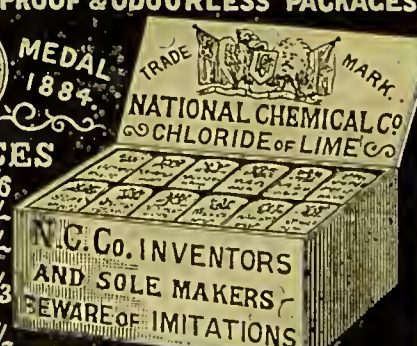
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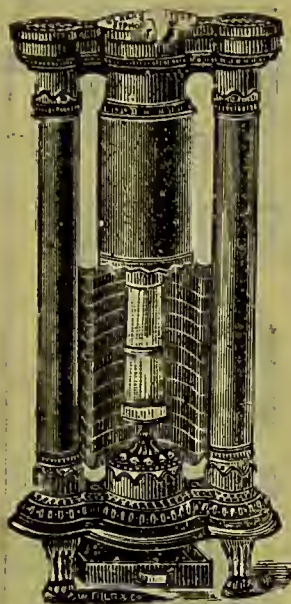
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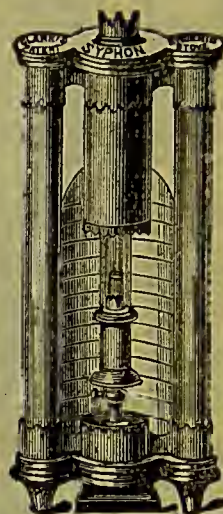
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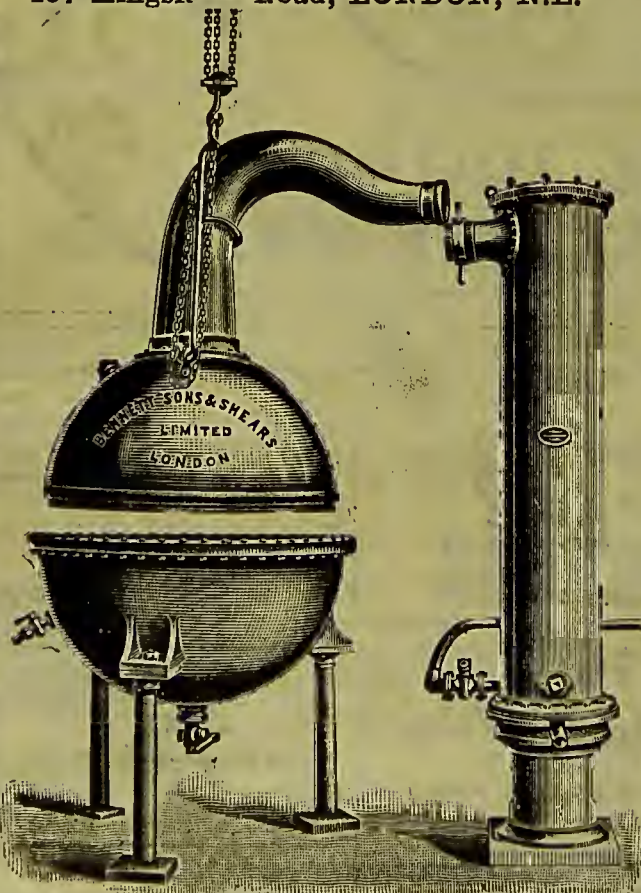
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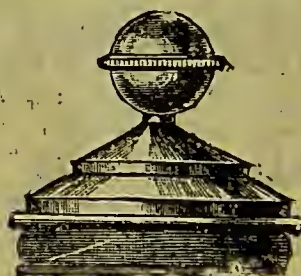
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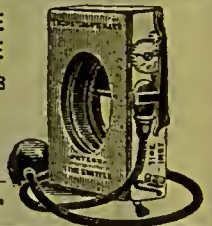
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NATURAL GAS

Abounds in the United States; of a kind here is a sample, quoted from an American advertisement NOW being published. The date of the Competition is suppressed; it was June, 1888.

ST. JACOBS OIL AN EASY WINNER IN THE GREAT COMPETITION!

SOMETHING WHICH WILL INTEREST THE PUBLIC
MORE THAN IT WILL OUR COMPETITORS.

IN order to ascertain the views of Chemists throughout the United Kingdom, as to which of the many remedies for outward application had the largest sale and was most popular among the people, the publishers of *The Chemist and Druggist* (the leading Chemist Trade Journal of the world) recently invited a Post Card Competition, each dealer to name on said Post Card the preparation for outward application which was the most popular with his customers, and had the largest sale. The publishers received 635 Post Cards, with the following results:—

ST. JACOBS OIL	384
Elliman's Embrocation	172

Eight other outward applications had one vote each. It is an old saying, and a true one, that "figures won't lie," and here we have them.

The British public know when they have got a good thing, and they stick to it. St. Jacobs Oil has proved itself to be superior to any and all other remedies for outward application in thousands of tested cases; the public know this, hence its wonderful popularity and enormous sale, as demonstrated by the above figures. Our competitors make a hard fight to reach us, but the hopelessness of their efforts is demonstrated by actual figures, as shown by *The Chemist and Druggist* competition. After all, it is quality, not quantity, which wins. St. Jacobs Oil is a scientific pharmaceutical preparation of a high order of merit; it stands at the head, and always will, because it is the best.

If these people stand by their assertions, what about the following?—

The British and Colonial Druggist Post Card Competition of July, 1893, gave

ELLIMAN'S	711
St. Jacobs Oil	281

This without the aid of Gas.

(Signed) **ELLIMAN, SONS & Co.**

Equal to Cut.



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We are,

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N.B.—To enable us to deliver goods in September, the Trade are advised to book their orders early in August. We cannot guarantee the execution of orders to include Lamps, received after the 15th of September.

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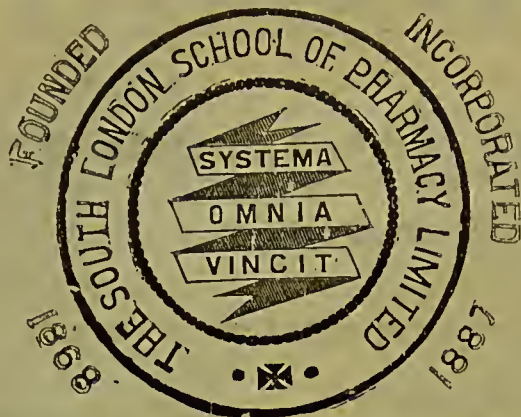
I. To Members of the British Pharmaceutical Conference.

THE favourite fad of the purveyors of pharmaceutical morals, that every pharmacist is bound to make his own galenicals, has not been pushed quite so vigorously of late. The extreme probability that in less than a decade—if companies continue unmolested—the individual pharmacist will have ceased to exist, exercises a somewhat depressing effect upon the ethical market. But the Conference meeting affords a rare chance to bestride a hobby-horse, and it will be strange indeed if factory-made products do not form the text of more than one denunciatory oration at Oxford. Our moralists are, as a rule, unfettered by logic, else it might be questioned whether the pharmacist who relies on factory-made alkaloids, anæsthetics, and the long array of metallic salts, is not as deeply dyed in moral turpitude as the “awful example” who prefers to use FLETCHERS’ CONCENTRATED LIQUORS rather than to divide his time between an infusion pot, a toy tincture press, and the domestic saucepan. It cannot surely be gainsaid that the pharmacist who does not make bicarbonate of soda, calomel, or iodide of potassium is as unworthy of his high calling as he whose bold boast it is that he always TESTS but never MAKES his galenicals.

Once upon a time it might have been said, with some pretence to truth, that no sufficient *data* existed for determining the genuineness of Tinctures, Extracts, and Syrups. If much valuable work recorded elsewhere, is ignored

by its “Year Book,” let us not do the Conference the injustice of suggesting that after an existence of more than thirty years it has thrown no light whatever upon the dark places of pharmacy. It is true that manufacturers have led the way. What pharmacist, for example, would have dreamt of demanding from his wholesale druggist particulars of the specific gravity, alcoholic strength, and percentage of alkaloid or extractive in the Tinctures supplied to him, until FLETCHERS’ TINCTURE-LIQUORS offered these guarantees? And how could the pharmacist be expected to preserve the pristine virtue of such a trying compound as Syrup of Iodide of Iron, or to control the vagaries of “Easton” or “Parrish,” until FLETCHERS’ CONCENTRATED LIQUORS came to the rescue, and provided him with stable solutions of definite strength?

The final encounter in the life and death struggle with the limited liability monster has already commenced. Nero fiddled whilst Rome burned, and following his example, the advance guard of pharmacy, which should have fought tooth and nail to defend the outposts, has been frittering away its time in endless fads. Of these, none quite equals in folly the playing-at-manufacturing fad. It is chiefly to preparations such as FLETCHERS’ CONCENTRATED LIQUORS, the purity and strength of which can be readily demonstrated, that the pharmacist must look as his best allies now that his worst foes are those of his own household.



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The fees at this School are absolutely inclusive, and there are no extras of any kind. The Directors spare no expense in rendering the education thoroughly efficient and in maintaining the very high percentage of success uniformly obtained by the students for the last 23 years. The Dispensing department is most commodious and perfect (the Laboratory for Practical Pharmacy being fitted with a complete steam manufacturing plant), and no extra charge is made for their use.

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PRINCIPALS—

R. B. GREAVES, Ph.C., F.C.S., Gold and Silver Medallist,
Botany and Chemistry, &c. J. W. J. TURNER, Ph.C., M.P.S.

The following gentlemen passed the Pharmaceutical Examinations held during July:—

Major.

Mr. G. H. ATHEY, Morpeth. Mr. H. HIGHFIELD, Sheffield.
Mr. J. TURNER, Sheffield.

Minor.

Mr. J. HAGUE, Lincoln. Mr. J. BEACHELL, Goole.
" E. G. ROBINSON, Carlisle. " W. J. BICKLE, Hereford.
" T. DALVIN, Barnard Castle. " C. DAYKIN TURNER, Alfreton.

The Next Full Course for the January Examination commences 3rd October. A Short Course for Advanced Students will start on 29th August for the October Examination.

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Mr. L. COOPER, F.C.S., F.R.B.S., &c.

This School is fitted up with every convenience for Pharmaceutical Students, and the utmost endeavours are made by means of individual attention to secure a successful issue.

Extra Lectures are given throughout the course, and for reference Students are requested to apply to any past Students.

Entries are now being received, and prospectuses will be forwarded on application to THE SECRETARY.

UNIVERSITY OF GLASGOW

SESSION 1894-95.

[The Classes for Women in Medicine and Arts are conducted in a separate building (Queen Margaret College), and are taught by Professors of the University and other Lecturers appointed by the University Court. For details see separate advertisement.]

THE MEDICAL SESSION will be opened on
MONDAY, OCTOBER 22, 1894.

WINTER COURSES.

Zoology, 9 a.m. and Zoological Laboratory, 10 a.m. to 1 p.m.—Professor Young, M.D.

Botanical Laboratory (January, February, March), 10 a.m.—Professor Bower, M.A. Cantab., D.Sc., F.R.S.

Clinical Medicine, 9 a.m.—Professor McCall Anderson, M.D., and Professor Gairdner, M.D., LL.D., F.R.S.

Clinical Surgery, 9 a.m.—Professor George Buchanan, M.A., M.D., LL.D., and Professor Macewen, M.D., LL.D.

Chemistry, 10 a.m., and Chemical Laboratory, 10 a.m. to 4 p.m.—Professor Ferguson, M.A., LL.D., F.S.A.

Physics, 2 p.m.—Lecturer, Magnus Maclean, M.A., F.R.S.E.
Anatomy: Senior, 11 a.m.; Junior, 1 p.m.; and Practical Anatomy, 9 a.m. to 4.45 p.m.—Professor Cleland, M.D., LL.D., D.Sc., F.R.S., assisted by J. Yule Mackay, M.D., and other Demonstrators.

Practice of Medicine, 11 a.m.—Professor Gairdner, M.D., LL.D., F.R.S.

Materia Medica, 1 p.m. and Pharmaceutical Laboratory.—Prof. Charteris, M.D., assisted by William MacLennan, M.B.

Physiology, 12 noon, and Physiological Laboratory, 10 a.m. to 4 p.m.—Professor McKendrick, M.D., LL.D., F.R.S., assisted by William Snodgrass, M.A., M.B., the Muirhead Demonstrator.

Surgery, 12 noon.—Professor Macewen, M.D., LL.D.

Midwifery, 2 p.m.—Professor Cameron, M.D.

Pathology, Systematic, 3 p.m. Mon., Wed., Fri.—Professor Joseph Coats, M.D.

SUMMER SESSION, 1895.

During the Summer Session, which opens on April 22, the Courses of Botany, Practical Chemistry, Medical Jurisprudence (Professor Simpson), Clinical Medicine, and Clinical Surgery are given. There are also Courses of Anatomy (Lectures on Embryology), Practical Anatomy, Practical Zoology, Vegetable Histology, and Practical Botany, Practical Physiology (including Histology), Practical Materia Medica, Practice of Medicine, Practical Pathological Histology, Practical Pathology, Operative Surgery, and Lectures on Diseases of Women.

Diseases of the Eye.—Thomas Reid, M.D., Waltonian Lecturer.

Insanity.—David Yellowlees, M.D., LL.D., Royal Asylum, Gartnavel.

WESTERN INFIRMARY.—This Hospital, near the University, contains 400 Beds for Medical and Surgical Patients, also Wards for Skin Diseases, and one for Diseases peculiar to Females.

DEGREES.—Four Medical Degrees are conferred under the new regulations, viz.: Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.), which must be taken together; Doctor of Medicine (M.D.) and Master of Surgery (Ch.M.); all of which are recognised by the Medical Acts as qualifying for Practice throughout the British Dominions.

FEES.—The Fee for each systematic class is, as a rule, £3 3s. The Fee for M.B. and Ch.B. is £23 2s.; for M.D. £20 13s. (including stamp duty); and for Ch.M. £10 10s.

BURSARIES.—Bursaries to the annual amount of £630 are restricted to medical students, whilst scholarships and fellowships to the amount of upwards of £1,600 may be held by medical students who have gone through the Arts Course.

Full particulars as to the course of education and examination required for the Degrees, and the Preliminary Examination required to be passed by Students before beginning medical study, will be found in the University Calendar (by post, 3s. 6d.); or a Syllabus of the regulations, fees, &c., may be obtained by applying to Mr. W. INNES ADDISON, Assistant Clerk

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24 NEWINGTON, LIVERPOOL.

Principal—Mr. R. C. COWLEY, Ph.Ch.
(CONSULTING CHEMIST.)

Late Mr. J. S. WARD.

At the January Examination the following gentlemen passed from this School:—

MAJOR.—Mr. E. WILLIAMS, Liverpool.

MINOR.

Mr. J. GLOVER, St. Helens.

" R. C. HERMAN, Liverpool.

" T. N. MERCER, Farnworth.

Mr. R. RANDALL ROBERTS, Chester.

" T. W. ROBERTS, Ellesmere

Port.

The total percentage of passes at this examination was unusually low, but this School has again maintained a high percentage.

NOTE.—Special attention is paid to the study of BOTANY, as this usually dry subject is made interesting by each student going through a complete course of practical Microscopic Botany.

The present Course began the Second Tuesday in April.

Syllabus, with full particulars, may be had, post free, on application to the Principal.

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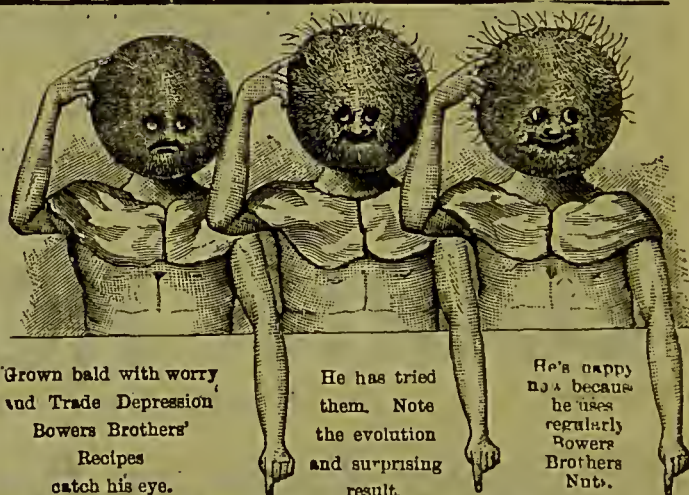
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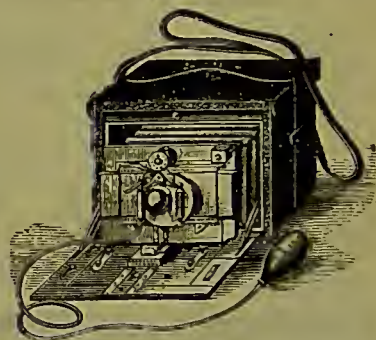
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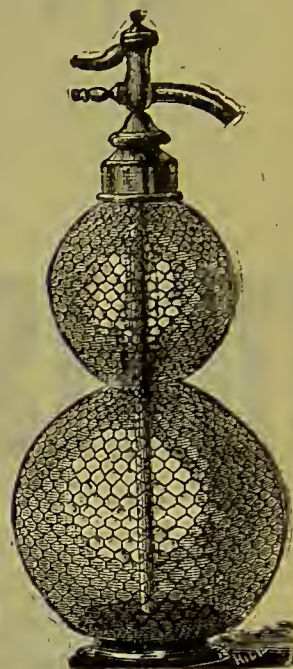
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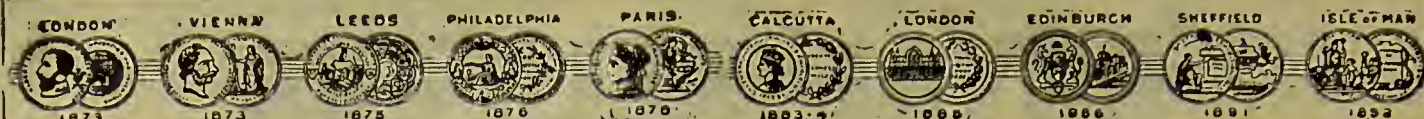
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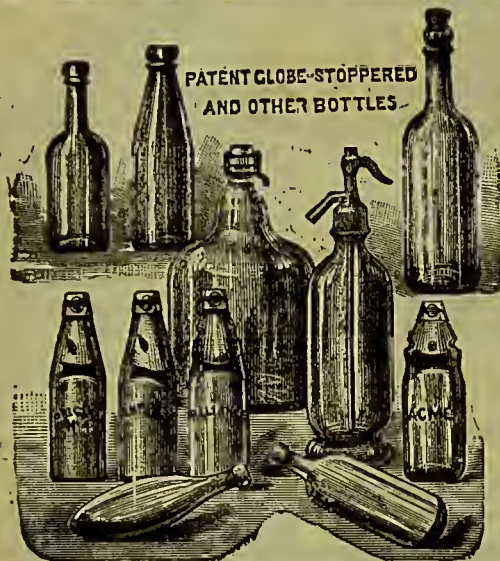
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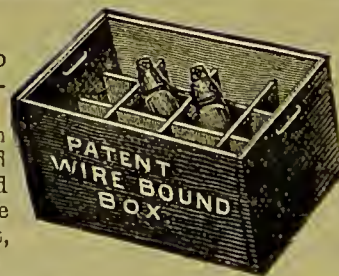
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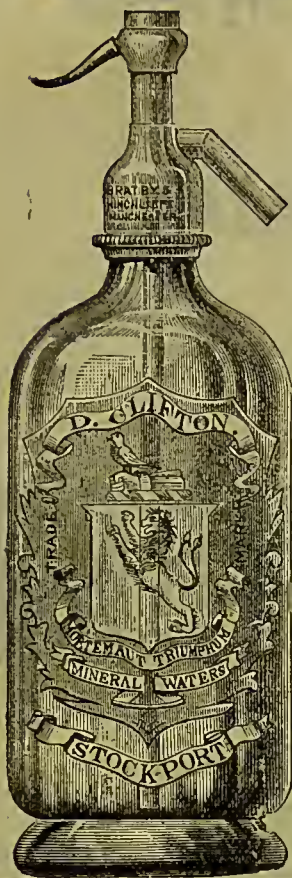
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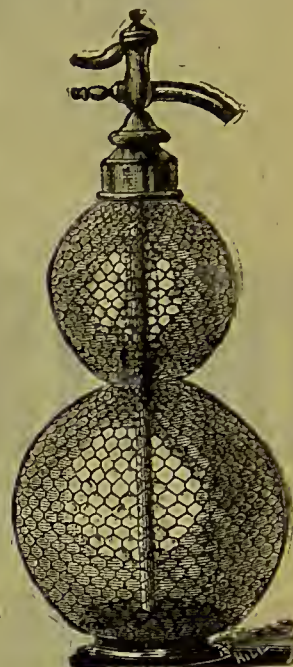
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Champagne

Chemists are requested to write for Show Tablets,
Trade Terms, and Special Plan of Introduction in
country and town, to the Sole Consignees—

HERTZ & COLLINGWOOD, 4 Sussex Place, London, E.C.

WHOLESALE.

Chemists are recommended not to let the bulk of the
Summer Beverage trade be done by Grocers and Supply
Stores, but to do it themselves by making a show of our
"CASTLE HORN" brand of

LEMON SQUASH

Made from FRESH LEMON FRUIT, and of Highest Quality.

In Reputed Quarts (6 to gallon).

RETAIL, 1/- PER BOTTLE.

The Largest and Best offered.

Very Handsomely Labelled.

NOTE THE FAVOURABLE WHOLESALE PRICES.

In free Wood Cases of 3 dozen each.

For 1 Case	...	8/- dozen, carriage paid.
" 2 Cases	...	7/6 " "
" 4 Cases	...	7/- " "

Less than a Case, 8/- dozen with other goods.

The Carriage is paid as above to any station in England or Wales. If to
Scotland or Ireland, 6d. per dozen extra.

In each case is enclosed a Lithographed Showcard and packet of Handbills,
without our name, showing facsimile of bottle in colours.

Not sent out on sale or return. Above prices are lowest for quantities named.

PROPRIETORS AND MANUFACTURERS—

W. KEMP & SON, WHOLESALE DRUGGISTS, HORNCastle.

London Agents—BARCLAY & SONS, 95 Farringdon Street, who
will supply large or small lots at above prices, net.

ROYAL SELTERS NATURAL TABLE WATER

ROYAL PRUSSIAN



MINERAL SPRINGS.

WE hereby beg to announce to the public that we have leased the whole management of the Royal Mineral Springs, at NIEDERSELTERS and FACHINGEN, to Mr. FREDERICK SIEMENS, in Dresden, from the 1st April of the current year onwards. The tenant is bound, according to the Deed of Contract concluded by him, to undertake the bottling as heretofore directly from the natural sources

WITHOUT ANY **addition** THERETO OR **deviation** THEREFROM WHATSOEVER.

WIESBADEN, the 9th February, 1894.

STATE OFFICE—Department for direct Taxes, Domaine and Forests v. TEPPER-LASKI v. AWEYDEN.

ROYAL SELTERS NATURAL TABLE WATER.

Bottled under the supervision of the Prussian Government.

ROYAL MINERAL SPRINGS, AT NIEDERSELTERS.

Notwithstanding repeated advertisements and statements not always strictly accurate, no water has succeeded in displacing that of the ROYAL MINERAL SPRINGS, at NIEDERSELTERS (Seltzer Water), from its position as a

NATURAL TABLE WATER,

or in lessening its reputation with the medical profession, or with the public at large. Professors Tichborne and James, authors of the well-known work, "The Mineral Waters of Europe," declare it to be the most celebrated Mineral Water in the world. It is supplied to the public just

AS IT COMES FROM THE SPRINGS,
and herein differs from several waters recently introduced. Natural Seltzer Water requires

NO ARTIFICIAL ADDITIONS.

Its natural constituents (alkaline, carbonates, and chlorides) give it the refreshing quality which assists in allaying thirst, and the carbonic acid gas, which is slowly given off, renders it very pleasant to the taste and grateful to the stomach. In order to prevent the possibility of any artificial manipulations or additions, the Inspectors of Springs have been directed to allow all persons to visit and view the whole of the works. The tenant is, moreover, bound to bottle the water direct from its source

WITHOUT ANY ADDITION OR ALTERATION.

Seltzer Water is too well known to require any extravagant assertion as to its merits. It mixes well with wine, spirits, milk, and fruit syrups, and once tried is seldom, if ever, discarded. The public may feel assured that the genuine article is being supplied if they find the bottles and jars bear a label with the inscription as below:—

ROYAL MINERAL SPRINGS.



SIEMENS & CO.

SOLE AGENTS AND IMPORTERS—

PICKARDT & COMPANY,
26 REGENT STREET, LONDON, S.W.

CAUTION.

In order to obtain the Genuine Water, purchasers must ask for the

ROYAL SELTERS WATER.



DAN RYLANDS, LIMITED,

Glass Bottle Manufacturers, Box and Case Makers, Soda-water Machinery Engineers, and General Providers to the Mineral Water Trade.



GLASS BOTTLE DEPARTMENT.

We have had TWENTY YEARS' experience in the making of Globe Stoppered Bottles, and have manufactured more than all other firms in the World put together. RYLAND'S "Valve," "Reliance," "Acme," and "Original No. 4," are the leading Bottles in the Trade. All our Bottles are made with a patent tool of which we are the Sole Owners, and the grooves produced therewith will be found the most reliable in the market. All Buyers should see that the name of "DAN RYLANDS" and a figure 4 are stamped upon each bottle, in order to ensure our special manufacture and extra strength of glass. The names of our various shapes of Globe-stoppered Bottles are also registered, and should be used by buyers when placing their orders.

Our Syphon Bottles are of the very first quality, with pure block-tin Tops and strong, brilliant, pressure-resisting glass, elegant in appearance, and of simple construction. All kinds of screw-mouth and cork bottles for the aerated-water trade.

Our patent machine-made "Climax" and other Bottles are accurately made and specially designed for Preserves, Pickles, Confectionery, and for all purposes to which wide-mouth Glass Vessels can be applied.

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Our Essences, Tinctures, and other ingredients are prepared by the Standard Essence Co., for whom we are sole agents. Their superior preparations are produced by a process which preserves the full natural aroma of the Fruits. These essences are highly concentrated, of exquisite flavour, and absolutely pure.

Essential Oil of Lemon, Acids, and Colourings of the finest quality and at moderate prices.



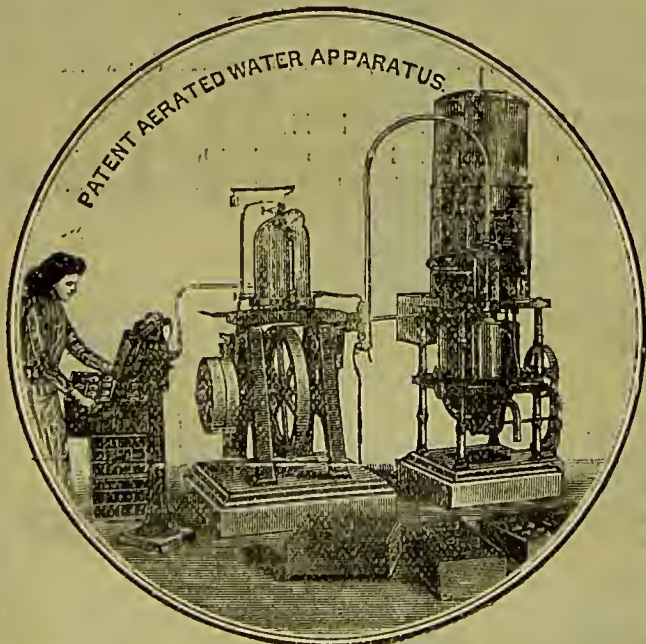
SODA-WATER MACHINERY DEPARTMENT.

This Machinery possesses exceptional merits. The Aerated Waters it produces may be relied upon for uniformity of quality, and as regards economy our Patent Plants eclipse all others. They save materials, power, space, labour, time, and money.

We are also supplying our Patent Machines adapted for using Liquefied Carbonic Acid Gas, to all who prefer this system of Aerated Water making. They are strong, simple, easily managed, and reliable.

Our Filling Machines are the most popular and leading fillers in the market. All kinds, for hand or power, for corks or patents. Of our Paragon Fillers there have been

over 4,500 sold.



BOX DEPARTMENT.

RYLAND'S PATENT WIRE-BOUND BOXES are far superior to hoop-ironed boxes, which catch and drag against everything they come in contact with. In the wire-bound boxes, the wire lies in a groove and is protected from wet and rust. The wire-bound boxes are the strongest, lightest, and neatest in the trade.



Catalogues and Price Lists free on application.

DAN RYLANDS, LIMITED, BARNESLEY, ENGLAND

THE
C.A.M.W.A.L.
THE CHEMISTS' AERATED MINERAL WATERS ASSOCIATION LIMITED.

TABLE WATERS

Renowned for their
UNRIVALLED PURITY & EXCELLENCE

are recommended by

HUNDREDS

of well-known

MEDICAL MEN

in all parts of the United Kingdom.

These **SPLENDID TABLE WATERS** are sold everywhere by

THOUSANDS OF CHEMISTS

who find

IT PAYS THEM BEST

to do a GENUINELY PROTECTED TRADE, and to give their
Customers

COMPLETE SATISFACTION

For full Particulars and Advantages of Membership write to

The Chemists' Aerated and Mineral Waters Association, Ltd.,
LONDON, HARROGATE, BRISTOL, & MITCHAM.

BUSH'S LEMON OIL.

“Speciality.”

TRY IT.

OL. SANTALI “BUSH.”

TRY IT.

OL. SANTALI “BUSH.”

Artillery Lane, LONDON.

MASON'S
IS THE ORIGINAL
EXTRACT^{OF} HERBS

DON'T BUY
IMITATIONS.

MAKES THE FINEST BEVERAGE IN
THE WORLD.

ALL THE LONDON HOUSES STOCK OUR GOODS.

INVENTORS AND MANUFACTURERS—

NEWBALL & MASON, **HYSON GREEN** **NOTTINGHAM.**
WORKS,



ROBINSON'S LIEBIG'S BEEF WINE.

Composed of Liebig's Extract of Beef, Extract of Malt, and sound Port Wine.

REPORT ON BEEF WINES.

From the results of my Analyses of various Beef Wines I have had occasion to examine, none have equalled as regards strength, purity of ingredients, and (of no less importance) the skilful and judicious manner in which the respective ingredients have been proportioned and combined, the Liebig's Beef Wine manufactured by Mr. B. Robinson, of Pendleton, Manchester.

It is in every sense a reliable preparation, embodying in a pleasing and palatable form all the acknowledged medicinal and nutritive properties pertaining to Liebig's Extract of Meat, Extract of Malt, and sound Port Wine.

WILLIAM ELBORNE, F.C.S., F.L.S.,

Lecturer on Materia Medica in the Owens College, Manchester (Victoria University).
December 15, 1888.

ROBINSON'S ORANGE WINE.

Specially prepared for Quinine Wine, does not deposit, will keep good in any climate, and well adapted for Export Trade. Supplied in Cases containing 9, 18, 30, 60, or 120 Gallons. Terms on application. [2]

ROBINSON'S LEMON SQUASH.

This delightful Summer Beverage is produced solely from the finest fresh Messina Lemons, the juice of which is clarified from all muddy deposit, the fine aromatic flavour of the Peel is extracted and added to the prepared juice, thus securing a far more delicate and refreshing drink than can possibly be obtained by the old clumsy method of squeezing the lemon, &c. Sold in Bottles, reputed quarts, at 1s. each.

B. ROBINSON, Distiller and Brewer of British Wines, Church St., Pendleton, Manchester.

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(BY ROYAL LETTERS PATENT).

GLASS, EARTHENWARE, TOURIST POCKET, MAIN SERVICE.

New Illustrated Catalogue and Prof. Tichborne's special report forwarded on application.

THE MAWSON FILTER CO., 137a Pilgrim Street, NEWCASTLE-ON-TYNE.
SOLD BY ALL WHOLESALE DEALERS.

HIRST, BROOKE & HIRST (LIM.), LEEDS,

Manufacturing Chemists and Wholesale Druggists, Manufacturers of

ORANGE WINE

Of Finest Flavour and Quality, and specially suitable for the Preparation of Orange Quinine Wine.



QUALITY

BRINGS ITS OWN REWARD.

THOSE WHO SELL

GLENDENNING'S BEEF & MALT WINE

FIND THEIR SALES INCREASE. WHY?

Because the constituents used are of the very finest quality, and the public are finding it out

Order through wholesale houses or direct from Sole Proprietors—

WM. GLENDENNING & SONS,

IMPORTERS OF SPECIAL WINES FOR INVALIDS.

9 Grainger Street, NEWCASTLE-ON-TYNE.

Established
1867.

VINACOCA.

Sold in Bottles at 3s. 6d. each, or 40s. per dozen, Retail.

ALSO

COCA LIQUEUR

The best Restorative is

ROLLAND'S COCA LIQUEUR.

The best Nerve Tonic is

ROLLAND'S COCA LIQUEUR.

The best Renewer of Health is

ROLLAND'S COCA LIQUEUR.

Sold in Fancy Wickered Bottles, 7s. 6d. each, Retail.

COCA is prepared in various forms :

COCA WINE, COCA LIQUEUR,

COCA LOZENGES, COCA TABLETS,

COCA ELIXIR, COCA TEA,

COCA CHOCOLATE, COCA TOBACCO, &c.

Usual Trade Discount. Pamphlets for distribution, carriage paid.

FULL PARTICULARS FROM

THE FRENCH HYGIENIC SOCIETY, 6 CONDUIT STREET, REGENT STREET, LONDON, W.

A COMPLETE APPARATUS,
CAPABLE OF PRODUCING
OVER

300 DOZ. BOTTLES

of Aerated Water per day,
at a minimum of cost,
from

£20.

SODA-WATER MACHINERY
NO DANGER. NO MESS.
BOTTLES, SYPHONS,
AND ALL APPLIANCES FOR THE TRADE.

Write for
**ILLUSTRATED
CATALOGUE,**

Post Free upon Application.

BARNETT & FOSTER

NIAGARA WORKS,

26^T EAGLE WHARF ROAD,
LONDON, N.



A. MILLAR & CO., DUBLIN PURE ORANGE WINE

(VINUM AURANTII, B.P.), prepared in strict accordance with the Formula of the British Pharmacopœia.

EIGHT PRIZE MEDALS AWARDED.

GOODALL'S HOUSEHOLD SPECIALITIES.

YORKSHIRE RELISH.

Most Delicious Sauce in the World. Bottles, 6d., 1s., & 2s. each.

GOODALL'S BAKING POWDER.

The Best in the World. 1d. packets; 6d., 1s., 2s., and 5s. Tins.

GOODALL'S EGG POWDER.

One 6d. Tin is equal to 25 Eggs. In 1d. packets; 6d., 1s., and 5s. Tins.

GOODALL'S CUSTARD POWDER.

Delicious Custards without Eggs. In Boxes, 2d., 6d., & 1s. each.

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Delicious Blancmange in a Few Minutes. Boxes, 6d. and 1s. each.

GOODALL'S QUININE WINE, B.P.

Best Tonic yet Introduced. Bottles, 6d., 1s., and 2s. each.

GOODALL'S GINGER-BEER POWDER.

Makes the Best Ginger-Beer. Packets, 3d. and 6d.

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For Painting Stoves, Grates, Iron, Tin, &c. 6d. and 1s. Bottles.

GOODALL'S LAVENDER WATER.

Rich and Lasting Perfume. Bottles, 1s., 2s., and 5s. each.

GOODALL'S PLATE POWDER.

For Polishing and Cleaning all Metals. Boxes, 6d., 1s., and 2s.

GOODALL'S JELLY SQUARES.

Make a Delicious and Nutritious Jelly. In $\frac{1}{2}$ -pint, 1-pint, and Quart Boxes, 3d., 6d., and 1s. each.

PROPRIETORS—GOODALL, BACKHOUSE & CO., LEEDS.

PATENT MEDICINES AND DRUGGISTS' SUNDRIES.

Monthly Price List of Patent Medicines, Druggists' Sundries, &c., will be sent post free on application to

GOODALL, BACKHOUSE & CO., LEEDS.

**WRITE
TO-
DAY
FOR**

FREE
FULL-SIZED
SAMPLE TIN OF
"DORINA"
NURSERY BISCUITS

H. B. CHIBNALL, HAMMERSMITH.

A GOOD LINE FOR THE TRADE.

MEDICINE TIME INDICATOR

And POISON PREVENTIVE.

This invention is for use on Medicine Bottles, for recording the time of last dose or when the next dose should be given. It also distinguishes medicine bottles from others containing poisons or preparations not intended to be taken. It comprises a label or tablet of paper, upon which is printed a series of numbers from 1 to 12 inclusive. A pointer is arranged in connection with the label so that it might be set opposite any of the numbers to indi-



cate the time when a dose was last taken or when it should be next given. The label is gummed to or suspended from the bottle, or it may be placed in any convenient position in the patient's room if medicine for internal use only is being administered. It enables the patient or nurse to readily distinguish the bottle, thus obviating the liability to accidents, and is valuable for family use, by nurses in hospitals, for travellers, or for general use by Doctors and Chemists.

Special Terms to the Trade. Apply to the Patentee—

J. FEATHER, 83 Croydon Rd., ANERLEY, S.E.

THE NEW BOOT-WARMER.

Chemists are respectfully referred to page 415 of THE CHEMISTS' AND DRUGGISTS' DIARY, 1894, where Illustrations and important Press Opinions of this saleable article are given.

The Westminster Budget of September 5, 1893, says:—"The 'boot drier and warmer' of Messrs. Belden is an improved boot tree, by means of which boots are not only kept in shape, but heated and dried while on the tree. The necessary heat is obtained by the insertion of a small iron, which has been previously heated, into a perforated case fixed in the hollow part of the tree. A strong sock of soft material is let into the bottom of the tree, and the warmer, lying immediately on this, will become a boon to large numbers of men and women, especially to those who are obliged to be out 'in all weathers.'"

All Sizes and Shapes kept in stock or obtained on the shortest notice.

Manufactured by

E. & W. BELDEN,
167 GT. DOVER STREET, LONDON, S.E.
BOROUGH,
To be obtained of all Wholesale Houses. [2]

PETER TYRER'S SAUCES

WORCESTER, READING, HARVIE, YORKSHIRE, AND "BOROUGH" KETCHUP.

SILVER MEDAL.

	Per gross.	Extra quality.		Per gross.	Extra quality.
Sample Bottles, dozen parcels	5/3	6/3	1/2 Bottles, flat or round, reputed half-pints	18/-	28/-
" " 1/2-gross boxes	5/9	6/9	" " " pints	26/-	38/-
" " dozen parcels	6/8	8/8	1 Pint Imperial, round stoppered bottles	52/-	62/-
" " 1/2-gross boxes	7/-	9/-	12 1/2-Gallon Casks (casks free)	20/-	32/-

ROYAL CAFE SAUCE, a Rich Fruity and Exquisite Flavour.

Square Glass Stoppered Bottles, containing nearly 1/2-pint Imperial, 42/- per gross. Sample Bottles at 7/- per gross.

MANUFACTORY — 30 SOUTHALL PLACE, LONG LANE, BOROUGH, LONDON, S.E.
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'DUCA DI CORIGLIANO'

THE CHEMISTS' LIQUORICE JUICE.

"THE BEST AND PUREST."

Larger sale than any other first-quality juice. To be had of all Wholesale Houses.

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33 FLAVIO GIOIA, NAPLES.

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40% PROFIT!

There is no Proprietary that will give you such a good return as "PEPSALIA"—40% on your outlay, and no "cutting," no "underselling."

A GUARANTEED PROFIT OF 8s. IN THE £.

TRY IT—IT WILL PAY YOU.

Send Postcard for Particulars and Form of Agreement to

G. & G. STERN, 62 Gray's Inn Road, LONDON, W.C.

THOS. GUEST & CO.

City Works, Carruthers St., MANCHESTER.

MAKERS OF ALL DESCRIPTIONS OF MEDICATED LOZENGES.

B.P., T.H. Ph., and General Proprietary Lozenges. Finest Gum Jujubes and Pastilles—Glycerine and Black Currant, &c. Granular and all other Effervescing Preparations. Boiled Sugars, Floral Tablets (1892).

BEFORE BUYING ANY OF THE ABOVE, PLEASE SEND FOR SAMPLES AND COMPARE.

TELEPHONE NATIONAL 235. TELEGRAMS "GUESTO."

JEWSBURY & BROWN

Have pleasure in announcing that they have removed to New Premises at

ARDWICK GREEN, MANCHESTER,

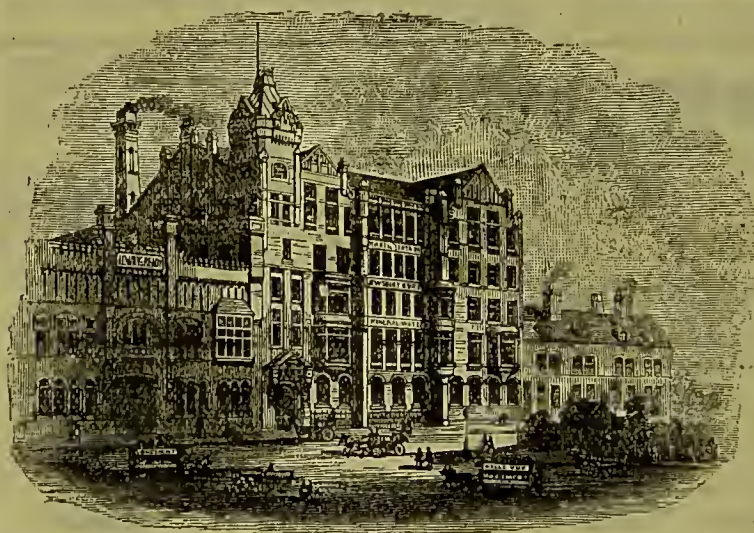
WHICH HAVE BEEN SPECIALLY DESIGNED FOR THE MANUFACTURE OF

MINERAL WATERS,

Aerated Beverages,

AND

BREWED GINGER BEER.



The
LABORATORIES, MACHINERY,
and APPLIANCES are
THOROUGHLY UP TO DATE,
and the Water Used comes only in
contact with Pure Tin and Slate,
thus absolutely avoiding any
dangerous metallic contamination.
As heretofore, only the Finest
Qualities of Materials will be used

in every department, relying on the quality of our productions to ensure for them a preference with the consumer who requires a safe and refreshing beverage of absolute purity.

Chemists who have not Stocked these Waters are invited to write for Prices.

CARRIAGE PAID ON RETURNED EMPTIES.

JEWSBURY & BROWN, Mineral Water Manufactory, **MANCHESTER**
ARDWICK GREEN,

ORDERS FOR EXPORT AND SHIP STORES RECEIVE SPECIAL ATTENTION.

Telegraphic Address—CHEM. COUS LONDON.

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Johnson, Ma they & Co., Lim.

BAKING POWDER
Goodall, Backhouse & Co.

SANDAGES
Bailey, W. H., & Son
Robinson & Sons
Schutze, P., & Co.
Wood, Vincent

BATH & FLESH CLOVES
Barclay & Sons, Lim.
Chemists' Association, Lim.
Maw, S., Son & Thompson
Pattison, G. | Solport Bros.
Wood, Vincent

BATH SALTS
Anderson & Co.

BICARB. SODA
Brunner, Mond & Co., Lim.
Howard & Sons
May & Baker, Lim.

RISMUTH PREP.
Heaton, Squire & Francis
Hewlett & Sons
Howards & Sons
May & Baker, Lim.
Synes & Co. (Tyter, T., & Co.
Whites, Alfred, & Sons

BOTTLES
Aire & Calder Bottle Co., Lim.
Barnett & Foster
Barratt, R. H.
Stratby & Hinchliffe, Lim.
Evans, Sons & Co.
Gilbertson, H., & Sons
Heaton, Wright & Co.
Isaacs & Co.
Johnsen & Jørgensen
Kilmer Bros.
Loftoden Cod Liver Oil Co.
Maw, S., Son & Thompson
Pothe, H., & Co.
Bylands, Dan, Lim.
Stipendum Stopper Co., Lim.
Toogood, W. | Foulden, E.

BOOKS
Hargreaves, Dr., M.D.
Berend, H. K.
Longmans, Green & Co.
Squire, F.

BORAX
Howards & Sons
Maek's Starch

BOXES
Austin & Co. (Oardboard)
Ayrtton & Saunders
Evans, Sons & Co.
Ford, Shapland & Co.
Leht, G. B., & Son.
Kilmer Bros.
Maxime & Co.
National Folding Box Co., Id.
Robinson & Sons
Rylands, Dan, Lim.

BRUSHES
Etches, A. & F. E.
Evans, Sons & Co.
Kent, G. B., & Sons

BUNSEN BURNERS
Berend & Co.

BUTTER COLR., &c.
Bonilton, J., & Co., Lim.
Crawshaw & Co.
Tomlinson & Hayward

CACHOUS
Bleasdale & Co.
Blyton, Astley & Co.
Jackson, T. | Balme & Co.
Warriak Bros.

CAPSULES
Denoual, J. (Medicinal)
Duncan, Flockhart & Co.
Evans, Sons & Co.
Hooper, B., & Co.
Lloyd, T. Howard, & Co.
Lothouse & Saltver
Maw, S., Son & Thompson
Parke, Davis & Co.
Richardson, John, & Co. (Lelcester), Lim.
Stearns, F., & Co.
Warriack Bros.
Wyleys, Lim.

CALENDARS
Hildeshemer, S., & Co., Lim.
Speller & Co.
Townsend, J.

CAMPFIRE
Howards & Sons
May & Baker, Lim.

CARBOLIC ACID
Mason, O. B., & Co.
Wandsworth Chemical Works, Lim.

OSERA SACRADA
Anderson & Co.
Duncan, Flockhart & Co.
Evans, Sons & Co.
Ferris & Co.
Harker, Staggs & Morgan
Moss, J., & Co.
Parke, Davis & Co.
Squire & Sons
Stearns, F., & Co.

CEBERSINE WAX
Boehm, Fredk.
Pfister, F.

CHALK, PRECIP.
Levermore, Aug., & Co.
Morrison, B., & Co.
Nieholle, G. W.

CHEMICALS
Berger, Kahler & Co.
Bohm, Fredk.
Boehringer, O. F., & Sohle
Bonilton, J., & Co., Lim.
Brunner, Mond & Co., Lim.
Burton, W., & Sons
Fletcher, Fletcher & Stevenson
Goodall, Backhouse & Co.
Hall, A. S., & Sons
Hodgkinson, Treasher & Howards & Sons (Pharm.).
Lothouse & Saltmar
Lorenz, H.
Macfarlan, J. F., & Co.
May & Baker, Lim.
Morris & Callard | Moss & O Smith, T. & H., & Co.
Tyter, T., & Co.
Washington Chemical Co.
White, A., & Sons
Zimmermann, A. & M.

CHECK TILLS
Gledhill, G. H., & Co.
O'Brien, Thos.
Stokes, G. R., & Co., Lim.
Venohar Check Till Co., Lim.

GHEST PROTOTE
Hookin, Wilson & Co.
Liverpool Patent Lint Co.
Maw, S., Son & Thompson
Newbery, F., & Sons
Pattison, G.
Sehnitz & Co. | Solport Bros.
Wood, Vincent

CHLORIDE GOLD
Johnson, Matthey & Co.

CHLOR. OF LIM
Government Sanitary Co.
Hebben, W. O.
National Chemical Co.

CHLORODYNE
Blyton, Astley & Co.
Darenport (Brown's)
Towle, A. F., & Son

CHLOROFORM
Duncan, Flockhart & Co.
Macfarlan, J. F., & Co.
Smith, T. & H., & Co.
Wright, Layman & Umner
Zimmermann, A. & M.

COCA & CHOCOLTE
Oakbury Bros. | Christie & Co.

COCAINE HYDR.
Howards & Sons

COD-LIVER OIL
Allen & Hanburys
Bleasdale & Co.
Burroughs, Wellcome & Co.
Evans, Sons & Co.
Hall, A. S., & Son
Hookin, Wilson & Co.
Loftoden Cod Liver Oil Co.
Lorimer & Co.
Oppenheimer, Sons & Co., Lim.
Richardson, J., & Co., Lim.
Sneath, T. & H., & Co.
Spratt's Patent (Dog Oakes)
Stearns, F., & Co.
Woolley, Sons & Co.
Wright, Layman & Umner

SOCA WINE

Armbricht, Nelson & Co.
French Hygienic Soc.
Lorimer & Co.
Stephen Smith & Co. (Hall's)
COLLAPSE TUBES
Batts & Co.

COMP. MEDICINE

Allen & Hanbury
Blyton, Astley & Co.
Burroughs, Wellcome & Co.
Hooper, B. & Co. | Leo & Co.
Lloyd, T. Howard & Co.
Parke, Davis & Co.
Richardson, J. & Co., Lim.
Stearns, F. & Co.

CONCENT. LIQRS.

Baiss Bros., & Co.
Cooper & Co.
Fletcher, Fletcher & Stevenson
Lloyd, T. Howard & Co.
Richardson, J. & Co., Lim.

CORN CURES

Gardner, C.

COTTON WOOL

Haynes, G. & Co. (Absorbent)
Lindner & Co.
Robinson & Sons (Absorbent)
Sanger, J. & Sons

CRSED LINSSEED

Morgan, G. H.
Mumford, G. S.
Sizer Bros.

DENTIFRICES, &c.

Beecham, T.
Bronnley, H., & Co.
Hanson, O.
Jewsbury & Brown
Lakeman, J. J.
Robertshaw, H. A., & Co.
Stevens, P. A.
Sutton, O., & Co.
Warlock Bros. | Wilson, A.
Woods, W. (Aroca Nut)

DISINFECTANTS

Barclay & Sons, Lim.
Beedler & Co.
Dydale, J. W., & Co.
Dussek Bros. & Co.
Elephant Disinfectant Co.
Fletcher Bros. & Co.
Government Sanitary Co.
Hebden, W. C.
Ival

Joyes' Sanitary Compounds Co.
Mason, C. E., & Co.
May & Baker, Lim.
National Chemical Co.
Ness & Co.

Odams' Chemical Co., Lim.
Sanitas Co., Lim.
Seabury & Johnson
Tyrer, T. & Co.
Wandsworth Chemical Works, Lim.

DOG MEDICINES

Spratt's Patent, Lim.

DRUGGISTS' SUN.

Ayrton & Saunders
Barclay & Sons, Lim.
Beiden, E. & W.
Chemists' Association, Lim.
Evans, Lecher & Webb
Evans, Sons & Co. (Savary)
Feaver, J.
Fordham, W. B., & Sons, Lim.
Hoskin, Wilson & Co.
Kay Bros., Lim.
Maw, S., Son & Thompson
May, Roberts & Co.
Newberry, F. & Sons
Ouelch, H. C.
Salt Regal Co., Lim.
Sanger & Sons | Seantle & Co.
Tidman & Son | Toogood, W.
Tunbridge & Wright
Wood, Vincent

DRUGS

Allen, S., & Sons (Grinders)
Graf, F. | Hopf, M.
Morrison, B., & Co.
Richardson, J. & Co., Lim.
(Grinders)

DRY SATTERIES

Browning, J. H., & Co.

DYES, &c.

Trawshaw & Co.

EAU DE COLOGNE

Farina, J. M. | Mulhens, F.
Hoskin, Wilson & Co.

EMBUCCATION

Day & Sons
Elliman, Sons & Co.

ENEMAS

Barclays, Lim.
Evans, Sons & Co.
Putney, J., & Sons
Sanger & Son
Wood, Vincent

ENGRAVERS

Cespar & Co., Lim.
Corsan, J. B.

ESSENCES

Boulton, J., & Co. (Lim.)
Brady & Hinchliffe, Lim.
Burgoyne, Burdidge & Co.
Bush, W. J., & Co.
Fletcher, Fletcher & Stevenson
Goodall, Backhouse & Co.
Hodgkinson, Prestons & King
Iris & Co., Lim.
Lorimer & Co.
May & Baker, Lim.
Newball & Mason
Eylands, Dan, Lim.
Stevenson & Howell
Tyrer, P. (Anchovy)
Tyrer, T. & Co.
Woolley, Sons & Co.

ESSENTIAL OILS

Allen, S., & Sons
Boehm, Fredk.
Bush, W. J., & Co.
Dodge & Olcott
Drysdale, J. W., & Co.
Evans, Sons & Co. (Clarke)
Hodgkinson, Prestons & King
Jackson, John, & Co.
Lambert, S., & Co.
May & Baker, Lim.
Poppelreuter, W.
Ransom, Wm., & Sons
Eylands, Dan, Lim.
Wosio & Andrioli
Spurway & Co.
Stevenson & Howell
Symes & Co.
Todd, A. M.
Treath, R. G.
Warrick Bros.
Widenmann, Brocher & Co.
Wright, Layman & Umney

ETHER

Duncan, Flockhart & Co.
Howards & Sons
Macfarlan, J. F., & Co.
May & Baker, Lim.
Robbins, J., & Co.
Tyrer, T. & Co.
White, A., & Sons
Woolley, Sons & Co.
Wright, Layman & Umney

ETHYL CHLORIDE

Kuhn, B.

EUCALYPTUS

Downie B.I.P. Co.

Langland, Mackay & Baker

EXALGINE

Kuhn, B.

EXTRACT MEAT

Armour & Co.
Bovril, Lim.
Brand & Co.
Idris & Co. (Viking Co.)
Liebig Co.
Liquor Carnis Co., Lim.
Mason, G., & Co.
Wyoth, J., & Brother

EXTRACTS, FLUID

Allen & Hanbury
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Burgoyne, Burdidge & Co.
Evans, Sons & Co.
Fletcher, Fletcher & Stevenson
Hearon, Squire & Francis
Hodgkinson, Prestons & King
Hooper, B., & Co.
Lloyd, T. Howard & Co.
Moss & Co.
Parke, Davis & Co.
Potter & Clarke
Ransom, W., & Son
Richardson, J. & Co., Lim.
Stearns, F., & Co.
Wright, Layman & Umney

EXTRACTS, SOLID

Allen, G., & Co.
Ransom, W., & Son
Stearns, F., & Co.

FEEDG BOTTLES

Burroughs, Wellcome & Co.
(Thermo Safe)
Chemists' Association, Lim.
Evans, Sons & Co.
Gilbertson, H., & Sons
Hearn, Wright & Co.
Hoskin, Wilson & Co.
Kilner Bros.
Marrill, E., & Co.
May, Roberts & Co.
Maw, S., Son & Thompson
Shirley Bros.
Surrey Packing Co.
Youldon, E.

FILTERS

Fordham, W. B., & Sons, Lim.
Mawson Filter Co.

FLY PAPERS

Buchan, D.
Ford, Shapland & Co.
Marshall, B.
Mather, W., Lim.
May, Roberts & Co.
Silverlock, H.
Slack, W., Exors.
Smith, J. H. | Strong, Christy
Tidman & Sons
Tunbridge & Wright

FOOD (Infants & Invalids)

Allen & Hanbury
Benger's Food
Bovril, Lim.
Krand & Co.
Corebos Salt Co., Lim.
Calbail, H. B.
Evans, Sons & Co.
Glendenning, W., & Sons
Goodall, Backhouse & Co.
Hearon, Squire & Francis
Liebig Co. | Lorimer & Co.
Mason, G., & Co., Lim.
Mellin's Food | Nestle, H.
Midge, Dr.
Squire's Chemical Food
Viking Food Co.
Wright, J., & Bro.

FORMULE

Brooks, T.

FULLERS' EARTH

Fullers Mining Co., Lim.

GELATINES

Astley Cooper & Co.
Boehm, F.

GINGER ALE

Bratby & Hinchliffe, Lim.
Chemists' Aerated & Mineral
Water Association, Lim.
Ellis & Son
Mills, E. M., & Co.
Ross & Sons (Lim.)

GLYCERINE

Blyton, Astley & Co. (Pastilles)
Boehm, F.
Evans, Sons & Co.
Price's Candle Co., Lim.
GOUT & RHEU-
MATIO CURE
Bromley, G.

GRANULAR PREP.

Blishop, A., & Sons
Blyton, Astley & Co.
Evans, Sons & Co.
Hearon, Squire & Francis
Lloyd, T. Howard & Co.
Richardson, J. & Co., Lim.
Stearns, F., & Co.
Tyrer, T. & Co.
Wright, Layman & Umney

GUM

Fink & Co. (Arabic, &c.)

HAIR PREP.

Bates, F. W.
Cassie & Co.
Chesbrough Co.
Edwards & Co.
Tranfield, H. P., Lim.

HERE BEER BITS

Newball & Mason
Potter & Clarke
Smith, J. E.
Southall Bros. & Barclay

HOMOEOPATH. C

Eppe, James, & Co., Lim.
Keene & Ashwell
Leath & Ross
Watson & Waters

HYPOPHOSPHITES

Duncan, Flockhart & Co.
Fellows

Fletcher, Fletcher & Co.
Lorimer & Co. | Symes & Co.
Tyrer, T. & Co.

INHALEERS

Burroughs, Wellcome & Co.
Gilbertson, H., & Sons
Hoskin, Wilson & Co.
Putney, J., & Sons
Toogood, W.

INK

Bewley & Draper, Lim.

INSECTICIDES

Barclay & Sons, Lim.
Hebbeler, K.
Hoskin, Wilson & Co.
Lorimer & Co.
Sandford & Sons
Steiner & Co.
Stevenson & Howell

IRON, REDUCED

Berger, Kahler & Co.

KETCHUP

Tyrer, P.

KOLA

Christy & Co.
Moss, John, & Co.

LARD

Ewen, J., & Sons

LEMON SQUASH

Kemp & Son

LIME JUICE

Evans, Sons & Co.
Lorimer & Co.

LINT

Burgoyne, Burdidge & Co.
Christy, T., & Co.
Lindner & Co.
Liverpool Lim. Co.
Maw, S., Son & Thompson
Newsome, C.
Robinson & Sons

LIQUORICE

Dennis Di Lugo & Co.

LIQUORS

Cooper & Co.
Fletcher, Fletcher & Stevenson
Hodgkinson, Prestons & King
Lloyd, T. Howard & Co.
Moss, John, & Co.
Oppenheimer, Son, & Co., Lim.
Stearns, F., & Co.

LOZENGES

Allen & Hanbury
Blyton, Astley & Co.
Gibson, B., & Sons (Manfrs.)
Guest, T., & Co.
Hill & Son | Lorimer & Co.
Raines & Co.
Richardson, J. & Co., Lim.
Stearns, F., & Co.
Warrick Bros.

MACHINERY

Bennett, Sons & Shears (Lim.)
Burroughs, Wellcome & Co.
Carter, R. H.
Gardner, W.
Hoskin, Wilson & Co.
Martin Peris & Co.
Pinar, J. W.
Werner & Pfleiderer (Knaad-
ing and Sifting)

MALT EXTRACT, &c.

Allen & Hanbury
Anderson & Co.
Burroughs, Wellcome & Co.
(Kepler)
Glendenning, W., & Sons
(Wine)
Hearon, Squire & Francis
Leconte, Eugene
Lofoden Cod Liver Oil Co.
Lorimer & Co.
Moss, J., & Co.
Oppenheimer, Sons & Co., Lim.
Parke, Davis & Co.
Raines & Co.
Raines, Clark & Co.
Richardson, John, & Co. (Lal-
cester), Lim.
Robinson & Co.

MAGNESIA

Bleasdale, W., & Co.
Evans, Sons & Co.
Henry, T., & W. (Calcine 4)
Hill, A. S., & Sons
Lloyd, T. Howard & Co.
Lorimer & Co.
Washington Chemical Co.

MARKING INKS

Bond (Daughter of the late
John) (Ink and Pencils).

MEDICINE CHSTS

Burroughs, Wellcome & Co.
Day, Son & Hewitt (Veterinary)
Stearns, F., & Co.
Tyrer, T., & Co.
Richardson, J., & Co., Lim.

MENTHOL

Burroughs, Wellcome & Co.
Christy, T., & Co.
Evans, Sons & Co.
Hoskin, Wilson & Co.
Maw, S., Son & Thompson
Shirley Bros. | Tyrer, P.

MERCURIALS

Howards & Sons
May & Baker, Lim.
Tyrer, T., & Co.

METH. SPIRITS, &c.

Boord & Son | Burroughs, J.
Jones & Co.
Phillips, G., & Co.
Smith, S., & Co.

METHYLENE

Robbins, J., & Co.

MICROSCOPES

Darton, F., & Co.

MILK

Nestle, H. (Condensed)

MORPHIA

Macfarlan, J. F., & Co.
Smith, Bertie, & Co.
Smith, T. & H., & Co.

NITRATE SILVER

Johnson, Matthey & Co., Lim.

OILS, PAINTS, &c.

Browning, J. H., & Co.
Fox, W., & Sons
Mathews, H., & Co.
Pinehin, Johnson & Co.
Wandsworth Chemical Works, Lim.

OPHTHALMIO

Pomies, E. (Powders)

OPIMUM

Hopf, B.

OPTICIANS

Botwright & Grey
Darton, F., & Co.

OTTO OF ROSE

Warrick Bros.

OXIDE OF ZINC

Hubbuck, T., & Son, Lim.

PAPAIN

Kuhn, B.

PAT. MEDCNS, &c.

Anglo-American Drug Co.
(Lim.) (Preserv.)
Atkinson & Barker (Infant)
Barclay & Sons, Lim.
Beecham, T. (Pills)
Bow's, Dr., Liniment
Bromley, C. (Gout and Rheu.)
Chemists' Association, Lim.
Clark's Blood Mixtures
Edwards & Son
Evans, Lecher & Webb
Fassett & Johnson
Fenning (Powders)
Goodall, Backhouse & Co.
Holloway (Pills and Oint.)
Hovenden & Sons
Lalor (Phosphodyne, &c.)
Mackenzie, Dr. (Catarrh Cure)
May, Roberts & Co.
Newberry, F., & Sons
Roberts & Co. (Foreign)
Sutton, W., & Co.
Warner, H. H., & Co., Lim.
Wilson, A. (Bunter's Nervins)

PEPPER MINT OIL

Bush, W. J., & Co.
Ransom, W., & Son
Stevenson & Howell

PEPSIN, &c.

Armour & Co.
Burroughs, Wellcome & Co.
Chassaigne & Co.
Fletcher, Fletcher & Stevenson
Newberry, F., & Sons (Inglurin)
Parke, Davis & Co.
Stearns, F., & Co.
Stern, G. & G.
Warner & Co. (Inglurin)

PEROX. OF HYD

May & Baker, Lim.
Robbins & Co.
Tyrer, T., & Co.

PETROLEUM

Allen & Hanbury
Christy, T., & Co.
Dee Oil Co., Lim.
Snowdon, Sons & Co.
Wandsworth Chemical Works, Lim.

PERFUMERY, FANCY SOAPS

Barclay & Sons, Lim.
Bleasdale, W., & Co.
Blondeau & Co. | Boehm, F.
Blyton, Astley & Co.
Burgoyne, Burdidge & Co.
Burroughs, Wellcome & Co.
Bush, W. J., & Co.
Chemists' Association, Lim.
Chesbrough Co.
Evans, Sons & Co.
Ewen, J., & Sons
Farina, J. M. | Greensill & Son
Hovenden & Sons
Lanoline | Mulhens, F.
Newberry, F., & Sons (Bardoe)
Pears, A. & F., Lim.
Potter & Clarke
Price's Patent Candles Co.
Sisio & Andrioli
Stearns, F., & Co.
Tidman & Son | Treath, R. G.
Treath, H. P., Lim.
Warrick Bros.
West, T. (Oxell's Moma)
Woolley, Sons & Co. (Powder)
Wright, Layman & Umney

PHARM. PREPS.

Allen & Hanbury
Armour & Co.
Baiss Bros.
Barron, Harveys & Co.
Bieber, J. D. | Boehm, Fredk.
Boehring, O. F., & Sons
Boulton, J., & Co., Lim.
Burgoyne, Burdidge & Co.
Burroughs, Wellcome & Co.
Duncan, Flockhart & Co.
Ferris & Co.
Fletcher, Fletcher & Co.
Giles, Schacht & Co.
Hearon, Squire & Francis
Hewlett & Son
Hill, A. S., & Sons
Howards & Sons
Joyes' Sanitary Compounds Co.
Macfarlan, J. F., & Co.
May & Baker, Lim.
Moss, J., & Co.
Oppenheimer, Son & Co., Lim.
Parke, Davis & Co.
Potter & Clarke
Richardson, John, & Co. (Lal-
cester), Lim.
Roberts & Co. (Seater), Lim.
Smith, T. & H., & Co.
Squire & Sons
Sutton, W., & Co.
Symes & Co. | Tyrer, T., & Co.
Warner, H. H., & Co., Lim.
White, Alfred, & Sons
Woolley, Sons & Co.
Wyeth, J. C., & Bro.
Zimmermann, A. & M.

PHOTOGRAPHIC

American Camera Co.
Barclay & Sons, Lim.
Blackfriars Photographic Co.
Boehm, Fredk.
Botwright & Grey
Burroughs, Wellcome & Co.
Christy, T., & Co.
Darton, F., & Co. [Lim.]
Eastman Photo Materials Co.
Fordham, W. B., & Sons, Lim.
Houghton, G., & Son
Howards & Sons (Unimale)
Johnson, Matthey & Co., Lim.
Kent, G. B., & Sons
Thornton-Hickard Co.
Tyrer, T., & Co.
White, Alfred, & Sons
Zimmermann & Co.

PILL MACHINES

Finday, J. W.
Toogood, W. (Coater)
Warner & Pfleiderer

PILLS (Coated, &c.)

Allen & Hanbury
Anderson Apothecaries' Hall
Beecham, T.
Blyton, Astley & Co.
Bromley, C. (Gout & Rheu.)
Carter's Little Liver Pills
Cox, Arthur H., & Co. (tasties)
Dr. Williams Medicine Co.
Duncan, Flockhart & Co.
Evans, Sons & Co.
Hearon, Squire & Francis
Hill, A. S., & Son
Holloway's
Hooper, Dr. John
Jolly's "Duchess" Pills
Lloyd, T. Howard & Co.
Lorimer & Co.
McKesson & Robbins
Newberry, F., & Sons
Norton, Lim. (Camomile)
Parke, Davis & Co.
Potter & Sacker
Richardson, J., & Co., Lim.
Stearns, F., & Co.
Wand, S. (Pearl Coated)
Warner, W. B., & Co. (Coated)
Wyeth, J. C., & Bro.
Wyle



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10/6.

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		DRIED MEDICINAL LEAVES.
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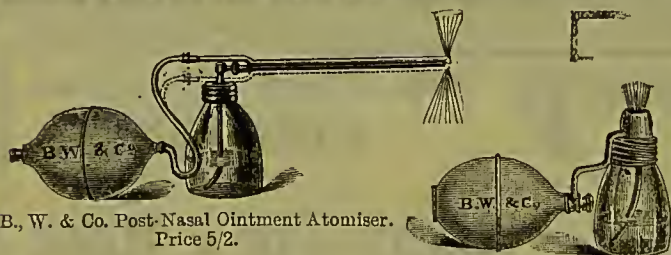
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It has been stated on good authority that the inhalation of medicated vapours is of decided benefit in the treatment of catarrhal conditions of the naso-pharyngeal mucous membrane and affections of the lungs and air passages. For a long time doubts existed as to the possibility of inhaled particles passing the glottis; very probably the objections raised had some foundation in fact when steam inhalations were employed, the majority of the vapour condensing before it reached the trachea. The case is different when an oily solution is employed for atomisation, as the minute particles are conveyed with each inspiration into the lungs and air passages, and by reason of the oily consistency are kept in prolonged contact with the mucous membrane. Many eminent throat specialists have raised objections to the indiscriminate employment of hot steam inhalations in the treatment of throat affections, because by this method the tissues are unduly relaxed, and the system is rendered less able to resist unfavourable influences.

The B., W. & Co. Ointment Atomisers are more easily used than the ordinary complicated instruments; they are very portable, simply constructed, and easily freed from all traces of medicament. Many of the remedies commonly employed in throat diseases are insoluble in water, and other solvents usually employed are contra-indicated on account of their irritating influence on the mucous membrane.



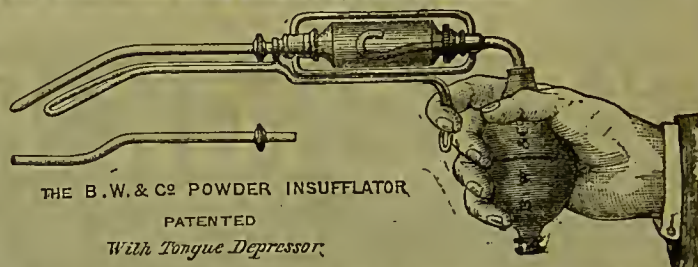
The introduction of Paroleine is a decided advance in therapeutics. This substance is of an oily consistency, is free from taste, odour, and colour, and is a good solvent for many of the medicaments employed for inhalation.

For the application of the spray the container is held firmly in the left hand, and after placing the nozzle inside the nostril the bulb should be firmly compressed; at the same time the patient takes an inspiration; by these means the spray is spread entirely over the surface of the anterior nares. When it is desirable to apply the spray to the supra-glottic surfaces and the air passages, the nozzle is inserted in the mouth and with each compression of the bulb a deep inspiration is taken, which causes the spray to be distributed generally over the entire mucous surfaces; the mucous membrane is thus covered with a thin film of the remedy. A decided advantage in favour of the B., W. & Co. Ointment Atomisers is that they may be employed at any time without any danger accruing from change of temperature.

THE NEW B., W. & CO. POWDER INSUFFLATOR (PATENT).

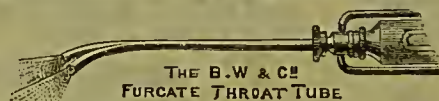
This new instrument presents conspicuous advantages over all the old forms. It is neat, light, highly finished, and altogether the most satisfactory form yet offered for the application of dry powders by insufflation to the nasal and oral mucous surfaces, and to sores, abscesses, &c., on the outer skin.

The advantage of having interchangeable cylinders to hold different powders is one which will be greatly appreciated in practice. The delay in emptying and refilling old-form reservoirs—not to speak of the great difficulty, frequently met with, in dispelling the unpleasant odour of a preceding insufflation (*ex. grat.* Iodoform)—was an objection levelled at insufflators of an earlier type. The exchange of one powder for another (such as is often desirable either in the same or in a different case) is the work of a moment, and there is not the slightest risk of the character of one insufflation being affected by that of another.



It is therefore recommended that practitioners should provide themselves with at least two extra cylinders in order that they may have more than one formula for insufflation available for instant use.

As will be seen from the sketch, the method of handling the Insufflator is natural and easy, so that the operator is enabled both to hold the instrument and to bring about delivery of the powder with one hand, leaving the other hand free—a very appreciable advantage. Again, each instrument is provided with two forms of delivery tube (see illustration), which are easily and quickly exchangeable. A very effective attachment for



depressing the tongue completes the instrument. It is to be noted that the tongue depressor as designed for use in connection with this insufflator is of a unique pattern and easily detachable.

In accordance with a suggestion from Dr. Brownlow Martin (who speaks highly of the new instrument in his recent work "Diphtheria, and its treatment by Magnesium Sulphite") we have introduced an improved tube having a furcate end, the advantage of which will be at once obvious to medical practitioners, the insufflation being delivered in two nebulae proceeding at an acute angle.

The B., W. & Co. Powder Insufflator, with one Cylinder	10/-
Tongue Depressor for same	2/6
Extra Powder Cylinders each	2/-
Case to contain two or three Powder Cylinders ..	1/6
Case to contain four Powder Cylinders	1/9
The B., W. & Co. Furcate Throat Tube	2/-

A Leaflet bearing upon the new Insufflator, with formulae for Insufflations, may be had free on request.

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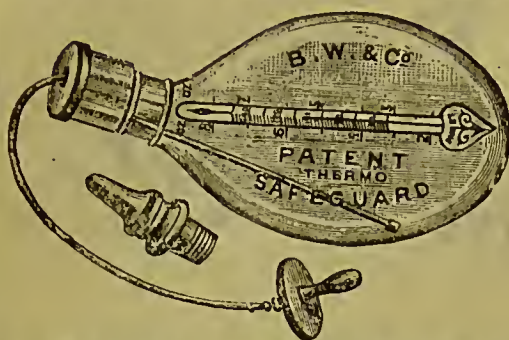
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"The bottle has a great deal to recommend it."—*British Medical Journal*.

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LIQUID.

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The Chemist & Druggist

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SATURDAY, AUGUST 4, 1894.

Partnerships
Situations Vacant
Situations Wanted
Miscellaneous

A Copy of this Supplement is inserted in every number issued of "The Chemist and Druggist."

THE ADVANTAGES

Of advertising in this Supplement should be kept in mind by Transfer Agents and Valuers; by Wholesale Houses and Contract Agencies; by Pharmacists desirous of selling Businesses, or of buying them; by those who want Assistants, or who are seeking Situations. For all such it is the medium which gives the smartest results, and its unique method of circulation has secured for it a surprising popularity. Space for displayed advertisements can be obtained on application to the Publisher, 42 Cannon Street, London, E.C.

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4. £700.—LONDON, S.E.—Retail and Dispensing Business; main thoroughfare; capital position; returns £700 yearly; can be largely increased by a pushing man; price about £600.

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6. £500.—LONDON, E.—Death Vacancy.—Retail, Prescribing, and Dispensing; situate in main thoroughfare; returns £500 yearly; well-fitted shop; particulars on application; price about £400 or offer.

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8. £1,500.—CHESHIRE.—High-class Dispensing and Retail Business; returns between £1,400 and £1,500 yearly, *net profit* about £600; double-fronted shop, handsomely fitted; price required £1,600.

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11. £1,250.—EASTERN COUNTIES.—Old-established Mixed Business; returns average between £1,200 and £1,250 yearly; capital business premises; large house and garden; price £1,100, or valuation; terms can be arranged.

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13. £1,900.—WALES.—Retail, Dispensing, and Wine Business, established many years; returns between £1,800 and £1,900 yearly; *very good profits*; good residence, with garden; price about £1,350.

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Particulars of any of the above will be furnished on application.

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TIME for study; London preferred. "Assistant," 320 Regent Street, W.

MANAGER of small Branch; outdoors; competent. J., 106 King's Cross Road.

EMPLOYMENT wanted; 20 years' experience; good references. 61 Delafield Road, Charlton.

WHOLESALE.—Gentleman desires engagement; qualified; Retail experience in large firm; Traveller or Laboratory; aged 26. "Epsilon," c/o Chemist, 4 Station Approach, Westcombe Park, S.E.

DISPENSER.—Wanted position as such to Medical Practitioner or Public Institution; experienced; good references; London or suburbs. Address, "Dispenser," Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

BRANCH Manager; qualified by examination and experience; undeniable references from three last situations; married; aged 32; knowledge of Dentistry and Photography. "Photo," Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

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MISCELLANEOUS.

Special charges are made for Advertisements under this heading, which can be obtained on application.

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CHEMISTS' and Druggists' Price Lists.—Please send for estimate before placing order elsewhere to Messrs. A. T. Roberts, Son & Co., 5 Hookney Road, London, N.E., Price List Printers and Advertisement Contractors; specimens and terms forwarded upon application.

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Indispensable to every pharmacist, and a necessary part of the technical education of every chemist's apprentice.

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CHEMIST wanted in the Laboratory of a Manufacturing Chemist; must be able to analyse quickly and accurately all drugs and chemicals, as well as superintend the manufacture of the finer and more important Photographic and Pharmaceutical Chemicals. Apply, by letter, stating age, qualifications, previous employment, and salary required, to Q. S., c/o Wm. Dawson & Sons, 161 Cannon Street, E.C.

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ASSISTANT; 23; best experience. T., 151 Westbourne Terrace, Hyde Park, W.

ASSISTANT; Part-time; London preferred; aged 21. H. S., 9 North Street, Chichester.

LOCUM; qualified; 27; best references; terms moderate. H., 13 Peter Street, Yeovil.

JUNIOR; 21; 5 years' experience; disengaged. S. T., 190 Burrage Road, Plumstead.

QUALIFIED; 26; outdoors; good references. "Chemicus," Wymondham, Norfolk.

LOCUM-TENENS; experienced; qualified. Mr. Poole, 29 Oldhill Street, Upper Clapton, N.E.

LOCUM; 40; good references; disengaged August 31st. F. G. Shrimpton, Grove Street, Oxford.

ASSISTANT; in or outdoors; age 28; 10 years' experience. Phillips, Chestnut House, Llandoverly.

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JUNIOR (part-time) in London; 8 years' experience; good references; Reed, Hollinghurst, Canonbie, N.B.

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BRANCH Manager; 31; qualified; married; extractor, counterman. "Celerity," 22 Gem Street, Birmingham.

JUNIOR; 23; abstainer; 3½ years' country experience; disengaged. "Statim," Cotswold, Wilton Road, Bexhill.

JUNIOR; 20½; 5 ft. 10 in.; 5 years' experience; London or South Coast. W. H. H., Spa Pharmacy, Gloucester.

AS Assistant, Manager, or Dispenser, by qualified Chemist; aged 42. S. Hassall, 143 Charles Street, Hanley, Staffs.

WHOLESALE; many years experience; any department. Address, "Alpha," 17 Plim Street, Seaforth, Liverpool.

ASSISTANT, or part-time for study; excellent references; London experience. Ruxton, Howard Street, Arbroath.

ASSISTANT or Locum; abstainer; 27; Hall qualification; disengaged. J., 68 Cromwell Road, Fitzhugh, Southampton.

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MANAGER; qualified; first-class experience; good Prescriber; permanency preferred. "Opus," 6 Park Road, N.

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JUNIOR; 4½ years' experience; 19; height 5 ft. 11 in.; good references; disengaged. H. Wing, 3 Willow Walk, Cambridge.

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GENTLEMAN (25), Pharmaceutical Chemist, of good address, desires appointment as Traveller. Glencoe, Cleveland Road, Torquay.

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ASSISTANT, accustomed to good-class Retail and Dispensing; aged 23; height 5 ft. 9 in.; indoors. J. M., 80 Lamb's Conduit Street.

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LOCUM-TENENS and temporary Manager; country only; qualified; steady and reliable; highest references; disengaged September 3. "Extractor," Grove Place, Englefield Green, Surrey.

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JUNIOR; 21; 5 ft. 10½ in.; 6 years' experience in Cheltenham, Lancaster, and Liverpool; good references; Manchester or London preferred. Russell, Castle View, Hubert Place, Lancaster.

JUNIOR, aged 21, height 5 ft. 10 in., seeks situation in first-class Dispensing, Extracting, and Retail Business; excellent reference; outdoors preferred. "Junior," Fern Villa, Epworth, Doncaster.

JUNIOR; outdoors; 26; Manchester (near Clayton's); hours 8 to 5. with hour for dinner; salary a secondary consideration; excellent references. Address, "Lego," 100 Burlington Street, Manchester.

SITUATIONS OPEN—Cont.

WANTED, qualified Manager for a Light Retail Branch; outdoors. Address, with usual particulars, to "Alpha," 47 Irvine Street Edge Hill, Liverpool.

WANTED, a Junior Assistant about 20 years old. Apply, with full particulars, enclosing photo to J. M. H., c/o Meggeson & Co., 14 Miles Lane, London, E.C.

THE Economic Drug Company, Cash Chemists, Cowbridge Road, Cardiff, are wanting a smart junior for a few weeks. Apply, giving usual particulars, to the Manager.

WANTED, Assistant for General Retail and Dispensing; quick, neat, and reliable; indoors. Apply, with particulars, to E. Edwards, Chemist, Albany Road, Cardiff.

WANTED, an Assistant; 25 to 30; single; indoors; salary £35 to £40; Mixed Business, Dispensing, &c. Apply to Mr. Fore Pott, Chemist, Tranmere, Birkenhead.

AT ONCE.—Junior, for two or three weeks; age, height, and salary required (outdoors); photo if convenient, also references; railway fare paid one way. Haynes, Chemist, Derby.

WANTED immediately, a qualified Manager, single, for a business situated in a large agricultural village; indoors; comfortable home; salary 20s. a week. Mrs. Langman, Haddenham, Cambs.

A. G. KENDERDINE, Oakfield Road, Clifton, Bristol, is in want of a gentlemanly Junior; please send photo (to be returned), with usual particulars as to salary, age, experience, &c.

WANTED, junior Assistant; one accustomed to a mixed business preferred; short hours; no Sunday duty; enclose photo, give full particulars; outdoors. Townsend, Long Sutton, Lincs.

COMPETENT trustworthy Chemist Assistant wanted: competent in Telegraphy (S.N.) and Postal Counter work; an exceptionally comfortable home offers. Postmaster, Buntingford.

WANTED, qualified Assistant to manage Branch; must have had good experience at the Counter. Apply, with references, &c., to J. H. Inman & Co. (Limited), Newcastle-on-Tyne.

REQUIRED, immediately, an indoor Assistant, with good experience, for the Front Counter. Apply personally, or, if by letter, state full particulars, Road, Chemist, 90 Victoria Street, S.W.

JUNIOR; accustomed to an Agricultural and Family trade, and able to Extract Teeth; indoors only. Apply, stating age, height, and salary required, to H. O. Webb, Pharmaceutical Chemist, Buckingham.

AUGUST 15; indoors; a smart Junior, of good address; accustomed to brisk counter trade. Apply, personally, or send portrait and references to good-class trade, Harold Mitchell, 56 Woodgrange Road, Forest Gate.

JUNIOR wanted, immediately; indoors; must be active and obliging; time for study; not under 20 years. Apply, enclosing c.v., stating salary required, age, height, references, to W. Jacobs, Chemist, Guildford, Surrey.

BY the middle of August, a Junior Assistant (aged 20 to 23), accustomed to a first-class Dispensing business, indoors. Apply, with usual particulars, to Messrs. Shribsole & Son, City Pharmacy, Town Hall Square, Chester.

AT once.—Assistant, accustomed to first-class Dispensing and Retail Business; indoors; age under 35; Minor qualification requisite. Apply personally, to A. & W. Hemingway, 23 Portman Street, Portman Square, W.

WESTGATE-ON-SEA.—For 2 or 3 months, a gentlemanly qualified Assistant well up in Dispensing; good references required. Apply, stating age, height, salary required, and enclosing carte, to F. R. Bessant, Pharm. Chem.

BROOM & REID, Exeter, require immediately a gentlemanly Assistant, about 23; Minor qualification; must have been accustomed to best-class Dispensing. State full particulars, with photo, and salary required.

AT once, an active Junior (outdoors), total abstainer, to keep up stock and assist at counter; send references, and say what kind of experience had; also state age and salary required. Apply to James Lees, 76 St. Alban's Road, Wintford.

MALTA.—Assistant required with Minor qualification; must be a good Dispenser and counterman; also able to keep accounts; salary £100 with rooms. Apply to "Malta," c/o Hodgkinsons, Treacher & Clarke, 101 Whitecross Street, E.C.

WANTED, a reliable Dispenser (qualified), for a public institution in London, for a few hours daily, from the 10th until 30th August. 164/17, Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

QUALIFIED Assistant wanted, by September 1, for Light Retail and Dispensing business; indoors; reliable Dispenser; only one kept. Apply, with full particulars and photo, to B. Whitrow, 15 St. John's Road, Tunbridge Wells.

A SMART, pushing, qualified man wanted as Manager for a Store trade at the Seaside; single preferred. Sent age, salary required, references, and experience, to "Manager," c/o Crocker & Co., 15 Walbrook, London, E.C.

J. T. BARRETT, Pharmaceutical Chemist, Leamington, requires a qualified Assistant, accustomed to good-class Dispensing. Applicants will please send photo, and state salary required (indoors), and full particulars as to experience.

TEMPORARY.—Wanted immediately, for month or five weeks, qualified Assistant; energetic; knowledge of Photography a recommendation; indoors; £1 per week. Apply personally or by letter, The Central Pharmacy, Oroydon.

EXPERIENCED Assistant required for Agricultural trade in South of England; state salary required, outdoor, and all usual particulars; good references indispensable. Apply, 157/34, Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

WANTED, for last week in August, Junior Assistant, about 22; indoors; with knowledge of Light Agricultural business preferred; must be active and gentlemanly; good references indispensable. State age, height, references, &c., to Ashfield, Chemist, Crewe.

JOHANNESBURG.—Qualified Assistant wanted; must be good Counterman with general experience; thoroughly steady and trustworthy; 3 years' agreement. Apply, with full particulars, to "Export," Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

JUNIOR, qualified preferred, wanted early in August; of good personal character; time for study or recreation; good-class Retail and Dispensing; comfortable; indoors. Write or call. Keith Loagstaff, 811 Fulham Road, Fulham, S.W. (a little beyond Walham Green).

A COMPETENT, gentlemanly Assistant required for a first-class Dispensing business, by August 14; good Dispenser; about 23 years of age; indoors; usual particulars, with salary required; please enclose photo. Apply, T. Hamnett, 38 South Road, Waterloo, Liverpool.

A N active Junior by the middle of August, aged about 21; one used to small country wholesale preferred, but not essential. Apply, giving fullest particulars as to age, height, references, salary required indoors, and enclosing photo, to be returned, to Fred. J. Oliver, Chemist, Maidstone.

IMMEDIATELY.—A Welsh-speaking qualified Assistant, to take charge of a Branch in a watering-place, with view to Partnership; rare opportunity; must be thoroughly reliable, of good experience, &c. Apply, giving usual particulars, to T. J. Hughes Chemist, Bethesda, North Wales.

BY middle of August, an Assistant; qualified; not less than 23 years of age; accustomed to a good-class country trade; junior kept; hours of business short; no one whose character will not bear the strictest investigation need apply. J. Meredith, Chemist and Wine Merchant, Brecon.

WANTED, an Assistant for August 20th, to take charge of my business, which is of a Mixed character, with Gilbey's Agency, health having given way; must be experienced, and qualified preferred; board with the family, and lodge out. Full particulars and terms to W. Price, 11 Witham, Hull.

WANTED an active, qualified outdoor Assistant to take charge of high-class Cash Drug-store, W.: a smart salesman, with good references, seeking a permanency, will be liberally treated. Apply, for address, or by letter, giving usual particulars, "Pharmacy," Messrs. Hovenden & Sons, 32 Berners Street, W.

BRANCH Manager wanted for Cash business in poor locality (London, S.E.); must be active and energetic, able to increase business, and a good Prescriber; abstainer and married man preferred; house and gas free. Apply, with particulars, to 161/27, Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

SECOND Assistant.—A gentleman, aged about 21, is required as Junior Assistant in a select business in the West-end of London; good reference and good hand-writing most essential. Apply personally or by letter (personally after 11 a.m. preferred), to John Taylor, Chemist, 13 Baker Street, Portman Square, London, W.

QUALIFIED Assistant, thoroughly competent and experienced at the Counter, required at once for a West-end house; must be gentlemanly, of fair age, good address, and hold undeniable references. Apply, with full particulars and enclosing photo if possible, to S., Pharmaceutical Journal Office, 5 Serle Street, London, W.C.